X. *Contributions to Terrestrial Magnetism.—No. V.*

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§ 8. *Observations within the Antarctic Circle, made on Board Her Majesty's Ships Erebus and Terror, in the Summer of* 1840, 1841, *in the Expedition under the command of Captain* James Clark Ross, *R.N.*

§ 9. *Observations between Kerguelen Island and Van Diemen Island, made on Board Her Majesty's Ship Erebus, July and August* 1840.

§ 8. *Observations within the Antarctic Circle in the Summer of* 1840, 1841.

In the present number of these Contributions, I have the pleasure of laying before the Royal Society the magnetic observations made by Captain James Clark Ross, and the Expedition under his command, in the first of the three voyages in which these researches have been prosecuted within the Antarctic Circle; and I gladly avail myself of the opportunity which the occasion affords, of congratulating the Society on the successful completion of the labours and on the approaching return, of an Expedition, in which the Fellows individually, and as a body, have taken so strong an interest. A large portion of the observations contained in this number were made in southern latitudes never before reached by man; and nearly the whole in a part of the globe extremely difficult of access, but containing within itself a field for researches peculiarly needed for completing and perfecting, in the words of Halley, "the abstruse theory of terrestrial magnetism."

In presenting to the Royal Society this portion of the results of an arduous enterprise, undertaken at their recommendation, it appears no improper departure from the usual tone of these communications, to allude very briefly to the causes which, under Providence, have conduced to its safe and successful issue;—to the admirable preparation and equipment of the vessels on the part of the Government,—to the high qualities of its Commander, manifested in conducting to its close, almost without an accident, and to the fullest accomplishment of its objects, a service of such duration and peculiar hazard,—and to the excellent spirit in which the Commander has been seconded by Captain Crozier, and supported by the officers and seamen who have been their worthy associates.

Viewed merely as an expedition of discovery, its voyages must ever rank high in the annals of those maritime achievements of which our country is proud; but as a scientific expedition, which is its more proper character, as well as that in which the

Royal Society must regard it with the greatest satisfaction, its best praise will undoubtedly be found in the record of its performances; and I hasten therefore to enter on that portion of them which I am now enabled to present to the Society.

The peculiar feature in the magnetic survey of the portion of the southern hemisphere now under notice is, that it was conducted almost exclusively on board ship, the observations being subject to the disturbance occasioned by the ship's iron, in a part of the globe where the effect of this influence becomes excessive. The first consideration, therefore, must be to investigate the corrections which it is necessary to employ in compensation. The analysis of the effects produced by the iron of a vessel, and the theory of their corrections, have been given by the late M. Poisson, in a memoir read in 1838, and published in the Transactions of the Académie des Sciences, entitled "Mémoire sur les déviations de la Boussole produites par le fer des Vaisseaux." In cases in which the disturbance is due, partly to the magnetism induced by the earth's influence in the soft iron of the vessel, and partly to permanent magnetism acquired and retained by harder portions of her iron, the complexity of the source from whence the disturbance originates renders its correction very difficult. But in wood-built ships, when proper precautions are taken in regard to the place in the ship in which the instrument is used in observation, the disturbing influence is generally found to be that of induced magnetism alone: and in this case the correction may be obtained with tolerable facility*. The disturbance produced by the iron of the Erebus and Terror appearing to be of the latter class, I requested my friend Mr. Archibald Smith, Fellow of Trinity College, Cambridge, who in his academic course obtained the highest distinction conferred by the University, to draw out from M. Poisson's fundamental equations, applicable to induced magnetism, the most convenient and practical formulæ for computing the corrections of the three magnetic

* Since this communication was read to the Royal Society, Mr. Airy has favoured me with the following note:—"M. Poisson's deductions are founded on the assumption, that the phenomena of magnetism depend on the action of two fluids which attract each other, but which each repel other portions of fluid of the same kind: and that induction is caused by an alteration in the arrangement of these fluids among the particles of iron, produced by the attraction and repulsion of the earth's magnetic fluids. His fundamental equations in common language may be stated as follows:—

$$\left.\begin{array}{l}\text{Horizontal force towards the}\\ \text{ship's head, as disturbed,}\end{array}\right\} = A' \times \left\{\begin{array}{l}\text{Undisturbed horizontal}\\ \text{force to ship's head}\end{array}\right\} + C \times \text{undisturbed vertical force.}$$

$$\left.\begin{array}{l}\text{Horizontal force towards the}\\ \text{ship's head, as disturbed,}\end{array}\right\} = E' \times \left\{\begin{array}{l}\text{Undisturbed horizontal}\\ \text{force to ship's side}\end{array}\right\}$$

$$\text{Vertical force, as disturbed} \ldots = G \times \left\{\begin{array}{l}\text{Undisturbed horizontal}\\ \text{force to ship's head}\end{array}\right\} + K' \times \text{undisturbed vertical force.}$$

"These equations are the same as those obtained by Mr. Airy in the Philosophical Transactions, 1839, the first and second being the same as the two equations in page 184, and the third being the same as the last of the group of three equations in page 181. Mr. Airy's expressions however imply that G is equal to C. The calculations in the sequel of this paper seem to show that in the Erebus G is greater than C. Mr. Airy's deductions are founded on the assumption that each particle of iron is converted, by the earth's magnetic action, into a magnet with its length parallel to the direction of terrestrial magnetism."

elements, for the use of nautical men, and of others who might be engaged in reducing magnetic observations made at sea. He has obligingly furnished me with the following memorandum :—

"At a given geographical position let φ represent the total magnetic intensity of the earth ; θ the dip, which is considered positive when the north end of the needle dips below the horizontal plane, negative when it inclines above it ; ζ the azimuth of the ship's head, or the angle between the principal section of the ship and the magnetic meridian, which is considered positive when the ship's head is to the west of the magnetic north, negative when to the east. Let $\varphi', \theta', \zeta'$, be the values of the same elements shown by a needle whose centre is at a given place in the ship, when affected by the magnetism induced in the soft iron of the ship by the magnetism of the earth. M. Poisson has shown that if the dimensions of the needle are very small compared to its distance from the iron by which it is affected, the following equations are true ;

$$\varphi' \cos\theta' \cos\zeta' = \varphi\,[\mathrm{A}' \cos\theta \cos\zeta + \mathrm{B} \cos\theta \sin\zeta + \mathrm{C} \sin\theta],$$
$$\varphi' \cos\theta' \sin\zeta' = \varphi\,[\mathrm{D} \cos\theta \cos\zeta + \mathrm{E}' \cos\theta \sin\zeta + \mathrm{F} \sin\theta],$$
$$\varphi' \sin\theta' = \varphi\,[\mathrm{G} \cos\theta \cos\zeta + \mathrm{H} \cos\theta \sin\zeta + \mathrm{K}' \sin\theta].$$

"In these equations, A', B, C, D, E', F, G, H, K' are constants which depend only on the distribution of the iron in the ship relatively to the position of the needle and the plane of the horizon, and which continue the same for every geographical position of the ship, while the distribution of the iron within the ship, and the inclination of the ship to the horizon, remain the same.

"If the centre of the needle is placed in the principal section of the ship, and the iron is symmetrically distributed on each side of that section, it will easily be seen that for values of ζ equal in magnitude and opposite in sign, the corresponding values of ζ' are equal in magnitude and opposite in sign, and the corresponding values of φ' and θ' are respectively equal in magnitude and the same in sign. These results necessarily imply that B, D, F and H are equal to zero. The equations in this case become

$$\varphi' \cos\theta' \cos\zeta' = \varphi\,[\mathrm{A}' \cos\theta \cos\zeta + \mathrm{C} \sin\theta],$$
$$\varphi' \cos\theta' \sin\zeta' = \varphi\,.\,\mathrm{E}' \cos\theta \sin\zeta,$$
$$\varphi' \sin\theta' = \varphi\,[\mathrm{G} \cos\theta \cos\zeta + \mathrm{K}' \sin\theta].$$

"If we divide each term by $\varphi\,\mathrm{A}'$ and put $\frac{\mathrm{C}}{\mathrm{A}'} = a$, $\frac{\mathrm{E}'}{\mathrm{A}'} = b$, $\frac{\mathrm{G}}{\mathrm{A}'} = c$, $\frac{\mathrm{K}'}{\mathrm{A}'} = d$,

$$\frac{\varphi'}{\mathrm{A}'\varphi} \cos\theta' \cos\zeta' = \cos\theta \cos\zeta + a \sin\theta \quad \ldots\ldots\ldots \quad (1.)$$

$$\frac{\varphi'}{\mathrm{A}'\varphi} \cos\theta' \sin\zeta' = b \cos\theta \sin\zeta. \quad \ldots\ldots\ldots\ldots \quad (2.)$$

$$\frac{\varphi'}{\mathrm{A}'\varphi} \sin\theta' = c \cos\theta \cos\zeta + d \sin\theta. \quad \ldots\ldots\ldots\ldots \quad (3.)$$

"From these equations are derived the following:—

$$\frac{\varphi'}{A'\varphi'}\cos\theta' = (\cos\zeta\cos\zeta' + b\sin\zeta\sin\zeta')\cos\theta + a\cos\zeta'\sin\theta, \quad . \quad . \quad . \quad (4.)$$

$$\cos\zeta\sin\zeta' + a\tan\theta\sin\zeta' = b\sin\zeta\cos\zeta'; \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (5.)$$

and representing $\zeta - \zeta'$, or the deviation by δ,

$$\sin\delta = a\tan\theta\sin\zeta' + (1-b)\cos\zeta'\sin\zeta \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (6.)$$

$$= \frac{2a}{1+b}\tan\theta\sin\zeta' + \frac{1-b}{1+b}\sin(\zeta+\zeta') \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (7.)$$

$$\tan\zeta' = \frac{b\sin\zeta}{\cos\zeta + a\tan\theta}, \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (8.)$$

$$c\cos\zeta + d\tan\theta = b\sin\zeta\,\mathrm{cosec}\,\zeta'\tan\theta' \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (9.)$$

$$= (\cos\zeta + a\tan\theta)\sec\zeta'\tan\theta' \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (10.)$$

$$= \sqrt{(\cos\zeta + a\tan\theta)^2 + b^2\sin^2\zeta}\tan\theta' \quad . \quad . \quad . \quad . \quad . \quad (11.)$$

$$\tan\theta' = \frac{c}{b}\cdot\left(\cos\zeta + \frac{d}{c}\tan\theta\right)\sin\zeta'\,\mathrm{cosec}\,\zeta \quad . \quad . \quad . \quad . \quad . \quad (12.)$$

$$= c\frac{\cos\zeta + \frac{d}{c}\tan\theta}{\cos\zeta + a\tan\theta}\cdot\cos\zeta' \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (13.)$$

$$= c\cdot\frac{\cos\zeta + \frac{d}{c}\tan\theta}{\sqrt{(\cos\zeta + a\tan\theta)^2 + b^2\sin^2\zeta}}. \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (14.)$$

"From these equations, and observations made at one geographical position with the ship's head on different azimuths, the constants a, b, c, d, A' may be determined, and the corrections of the affected elements at any other geographical position may be calculated.

"a and b may be determined from observed deviations of the compass needle by means of equation (5.). A table of the deviations on each affected or compass course, and of the true magnetic course for each affected or compass course, may then be calculated by equations (6.) or (7.). In these equations ζ, which is an unknown quantity, occurs in the second term on the right-hand side; but the term is so small that an approximate value of ζ may be used, and the error caused thereby neglected. This error is least in equation (7.), which is also the most convenient for calculation except on east and west courses.

"To find the compass course for each true magnetic course, it will generally be sufficient to apply the deviations corresponding to the nearest true magnetic courses contained in the Table last described; but if the deviations are large, it will be better to construct a separate table by means of equation (8.).

"c and d may be determined from the true dip and the affected dips observed on different courses by means of equation (11.), or more easily by means of (9.) and (10.); observing that the values of ζ employed should be not observed values, but tabular

values calculated in the manner described above. A table of the affected dip, and of the dip corrections on each course, may then be calculated from (14.), or more easily from (12.) and (13.); observing that (12.) must not be used when the ship's course is nearly north or south, and that (13.) must not be used when the ship's course is nearly east or west, and that the values of ζ should be tabular, not observed.

"The constants may also be determined from observations of the total intensity, by means of the first four equations, and tables for the correction of the observed intensities may be constructed by means of these equations. For this purpose, equation (3.) should be used when the dip is large, and the others when the dip is small.

"The values of a and b may be determined very readily, and probably with great accuracy, from observations of the horizontal intensity with the ship's head on the four principal compass courses. For if H_n, H_w, H_s, H_e represent the values so observed, then

$$a \tan \theta = \frac{H_n - H_s}{H_n + H_s}, \quad \ldots \ldots \ldots \ldots \quad (15.)$$

$$b = \frac{H_w + H_e}{2\sqrt{H_w H_s}}. \quad \ldots \ldots \ldots \ldots \quad (16.)$$

"If observations are made at equal intervals of time with the ship's head successively on the N., W., S., E., and N. points, the values of a and b thus determined will be independent of any regular increase or diminution of the intensity. If n, w, s, e represent the number of vibrations in equal times, on the four principal courses, of the same horizontal needle, beginning to vibrate in the same arc, and corrected for temperature alone,

$$a \tan \theta = \frac{n^2 - s^2}{n^2 + s^2}, \quad \ldots \ldots \ldots \ldots \quad (17.)$$

$$b = \frac{w^2 + e^2}{2ns}. \quad \ldots \ldots \ldots \ldots \quad (18.)$$

"The true declination may be found independently of the dip and of the constant a, by means of observations of the true azimuth of the ship's head on two courses. Let ψ represent the declination, which is considered positive when the north end of the needle is to the west of the true north, ω the true azimuth of the ship's head, which is positive when the ship's head is to the west of the true north; so that $\zeta = \omega - \psi$. And let ω_1, ζ'_1 and ω_2, ζ'_2 represent the observed values of ω and ζ' on the two courses,

$$\tan\left(\psi - \frac{\omega_1 + \omega_2}{2}\right) = \frac{b \sin(\zeta'_1 + \zeta'_2)}{2 \sin \zeta'_1 \sin \zeta'_2 - b \sin(\zeta'_1 - \zeta'_2) \cot \frac{\omega_1 - \omega_2}{2}}.$$

"If the observations are made with the ship's head on exactly opposite courses, $\omega_1 - \omega_2 = 180°$; and we have

$$\tan(\omega_1 - \psi) = \frac{2 \sin \zeta'_1 \sin \zeta'_2}{b \sin(\zeta'_1 + \zeta'_2)};$$

if at equal azimuths on each side of the magnetic north,

$$\psi = \frac{\omega_1 + \omega_2}{2}.$$

"The formula fails if $\zeta'_1 + \zeta'_2 = 180°$, the denominator becoming zero; the true value of $\tan\left(\psi - \frac{\omega_1 + \omega_2}{2}\right)$ in that case is

$$\frac{b}{\sin 2\zeta'_1 + b\cos 2\zeta'_1 \cot\frac{\omega_1 - \omega_2}{2}}.$$

Corrections for the Erebus.—We will seek in the first instance the values of the constants a and b, because they are those which can be obtained with the greatest degree of exactness, being derived from observations with the compass needle, which are made with greater precision than those with the inclination or intensity needles. Before the Expedition quitted England, a suitable position in the midship line was chosen for magnetic observations on board ship, and the effect of the ship's attraction on a standard compass placed in that spot, was ascertained by observations with the ship's head turned successively on each of the thirty-two principal points. This was done in September 1839 at Gillingham near Chatham, where θ, or the Inclination, was at that epoch 69° 05′*.

The observations in the Erebus gave results as follows :—

Ship's head by compass.	Attraction towards the west.	Ship's head by compass.	Attraction towards the west.	Ship's head by compass.	Attraction towards the west.	Ship's head by compass.	Attraction towards the west.
	° ′		° ′		° ′		° ′
N.	+0 06	W.	+4 19	S.	+0 28	E.	−3 42
N. by W.	+1 12	W. by S.	+4 40	S. by E.	−0 19	E. by N.	−4 53
N.N.W.	+2 01	W.S.W.	+4 03	S.S.E.	−0 48	E.N.E.	−3 46
N.W. by N.	+2 10	S.W. by W.	+3 24	S.E. by S.	−1 23	N.E. by E.	−3 18
N.W.	+3 03	S.W.	+2 45	S.E.	−1 53	N.E.	−2 59
N.W. by W.	+3 28	S.W. by S.	+2 08	S.E. by E.	−2 21	N.E. by N.	−2 16
W.N.W.	+3 51	S.S.W.	+1 34	E.S.E.	−2 50	N.N.E.	−1 39
W. by N.	+4 09	S. by W.	+0 52	E. by S.	−3 17	N. by E.	−0 49

We perceive by this Table that, allowance being made for slight irregularities in the observations, the masses of iron which acted on the compass needle of the Erebus in its standard position were distributed symmetrically, or very nearly so, on either side of the vertical plane, passing through the longitudinal midship section. We may therefore safely employ, in computing the corrections, the more simple formulæ which are applicable under this condition.

To obtain the constants a and b of these formulæ we may arrange equations on the several points, from the observations in the Table, of the form

$$\cos\zeta \sin\zeta' - b\sin\zeta\cos\zeta' = -a\tan\theta\sin\zeta'.$$

* Reports of the British Association, 1838.

N. by W.	·1905	− ·2115 b	= − 0·510 a	
N.N.W.	·3482	− ·3834 b	= − 1·001 a	
N.W. by N.	·4481	− ·4916 b	= − 1·454 a	
N.W.	·4727	− ·5258 b	= − 1·850 a	
N.W. by W.	·4193	− ·4798 b	= − 2·175 a	
N.N.W.	·2954	− ·3626 b	= − 2·417 a	
W. by N.	·1212	− ·1936 b	= − 2·566 a	
	+ 2·2954	− 2·6483 b	= − 11·973 a.	(1.)

W. by S.	− ·2689	+ ·1876 b	= − 2·566 a	
W.S.W.	− ·4130	+ ·3423 b	= − 2·417 a	
S.W. by W.	− ·5021	+ ·4427 b	= − 2·175 a	
S.W.	− ·5233	+ ·4754 b	= − 1·850 a	
S.W. by S.	− ·4729	+ ·4359 b	= − 1·454 a	
S.S.W.	− ·3574	+ ·3301 b	= − 1·001 a	
S. by W.	− ·1919	+ ·1768 b	= − 0·510 a	
	− 2·7295	+ 2·3908 b	= − 11·973 a.	(2.)

S. by E.	·1915	− ·1860 b	= 0·510 a	
S.S.E.	·3563	− ·3366 b	= 1·001 a	
S.E. by S.	·4693	− ·4451 b	= 1·454 a	
S.E.	·5161	− ·4832 b	= 1·850 a	
S.E. by E.	·4900	− ·4489 b	= 2·175 a	
E.S.E.	·3953	− ·3459 b	= 2·417 a	
E. by S.	·2462	− ·1888 b	= 2·566 a	
	+ 2·6647	− 2·4345 b	= 11·973 a.	(3.)

E. by N.	− ·1088	+ ·1939 b	= 2·566 a	
E.N.E.	− ·2967	+ ·3625 b	= 2·417 a	
N.E. by E.	− ·4214	+ ·4789 b	= 2·175 a	
N.E.	− ·4732	+ ·5252 b	= 1·850 a	
N.E. by N.	− ·4494	+ ·4888 b	= 1·454 a	
N.N.E.	− ·3492	+ ·3780 b	= 1·001 a	
N. by E.	− ·1908	+ ·2050 b	= 0·510 a	
	− 2·2895	+ 2·6323 b	= 11·973 a.	(4.)

From (1.) and (4.), changing the signs of (1.) and summing, we have

$$- 4{\cdot}5849 + 5{\cdot}2806\, b = + 23{\cdot}946\, a. \quad (5.)$$

From (2.) and (3.), changing the signs of (3.) and summing, we have

$$- 5{\cdot}3942 + 4{\cdot}8253\, b = - 23{\cdot}946\, a; \quad (6.)$$

whence $10{\cdot}1059\, b = + 9{\cdot}9791$; and $b = + {\cdot}9875$;

From (5.) and (6.), changing the signs of (6.) and summing, we have

$$47{\cdot}892\,a = {\cdot}4553\,b + {\cdot}8093\,; \qquad a = +\,{\cdot}0263.$$

We have also the equations at east and west;

$$\text{East} \;\ldots\ldots\; 2{\cdot}617\,a = +\,{\cdot}0645$$
$$\text{West} \;\ldots\ldots\; -2{\cdot}617\,a = -\,{\cdot}0753\,;$$

whence

$$a = \frac{{\cdot}1398}{5{\cdot}234} = +\,{\cdot}0267\,;$$

or including the observations at east and west in the general sum, we have $a = +\,{\cdot}0264$.

After the arrival of the Expedition at Hobarton, and before it sailed to the Antarctic Circle, a similar series of observations was made in the Erebus, on the 29th October 1840, and again repeated on her return to Hobarton the following autumn, viz. on the 29th June 1841. The south end of the needle being now the one which dipped below the horizon (θ being $-\,70^\circ\,40'$), the deviation of the compass was found to take place in the contrary direction to that which had been observed at Gillingham, the disturbance being towards the *west* as the ship's head went round from north by east to south, and towards the *east* as her head passed from south through west to north.

The line of no deviation was not found to correspond accurately with the north and south points of the compass on either of the occasions at Hobarton, but in 1840 coincided more nearly with the north by west and south by east, and in 1841 with the north by east and south by west. We may perhaps ascribe with probability irregularities of this nature to slight modifications in the distribution of the iron at different periods, which we cannot but view as of not unlikely occurrence; for example, such as might be occasioned by the ship being secured at different times by the starboard or the larboard chain cable. In looking through the observations of the Erebus, it is evident that there was no systematic or constant deviation of the plane of the ship's attraction from that of her principal section; but that the points of no disturbance were sometimes a little on the one side, and sometimes a little on the other, of the north and south points. It appears, therefore, not improper to class these irregularities with those others of accidental occurrence which occasion small discordances in partial results, and are usually ranged under the general technical head of errors of observation.

If, further, we compare generally the deviations in 1840 with those of April 1841, the latter appear systematically rather the more considerable in amount. Viewed as a single fact, this circumstance might be regarded simply as indicating that some change had taken place in the interim in the arrangement and distribution of the ship's iron, and an easy and natural explanation might appear to be afforded. It is however one of several facts which have presented themselves in the course of a careful examination of the observations of the first two years of Captain Ross's expedition, which seem to point to the possibility of a somewhat different cause, viz. that when

a ship changes her magnetic latitude, the corresponding change in the magnetism of the ship, or more strictly in that portion of it which is derived from induction, follows, but does not always, or altogether, take place instantaneously. It would accord with this supposition, that the disturbance of the compass should be less in the Erebus on her first arrival at Hobarton in 1840, than on her return there in 1841, because in 1840 she had recently passed through the lowest magnetic latitudes, and in 1841 she came immediately from the highest. The observations in 1840 give a less value for $a \tan \theta$ than those of 1841, and taking the dip at Hobarton as the value of θ, to which the induced magnetism of the ship on both occasions should strictly correspond, we should have a less value for a in 1840 than in 1841; whereas if with the same dip we take a mean between the disturbances of the compass on the first arrival and on the return, by which we may be conceived to neutralize in a great measure the temporary influences which have been supposed, we find the value of a to be almost identical with the result of the former experiments at Gillingham. From this accordance in the value of the constant in dips which differ so greatly as from $+ 69°$ to $- 70°$, we should infer the probability,—first, that the local attraction of the Erebus was due to induced magnetism alone, the influence of any portions of iron which, in the strict sense of the term, were permanently magnetic, being insensible;—and secondly, that no material change affecting the standard compass had taken place in the distribution of her iron. These inferences are by no means inconsistent with the supposition above suggested, that some portions of her iron might be of a quality intermediate between that of perfectly soft iron which undergoes instantaneous change, and that of iron which acquires permanent magnetism, and that such portions should be liable, in regard to their magnetic condition, to be more or less in arrear of the ship's magnetic position. I abstain from entering further into this question at present, because a fitter opportunity of doing so will be afforded when the whole of the observations of the Expedition shall be collected, including those which have yet to be made at Rio de Janeiro on the return from the high latitudes of the south, and in England after passing through the low magnetic latitudes of the equatorial region. Should it prove that the induced magnetism of a ship due to any particular dip requires time for its full development, more or less according to the various quality of her iron, the corrections to be applied may possibly in some ships be considerably complicated thereby: fortunately in the Erebus the difference in the amount of the disturbance on the two occasions at Hobarton, which gave rise to this discussion, is not of any serious consequence; and we may employ without any material inconvenience for our present purpose the mean of the two series as applicable generally between their respective dates, for which interval we specially desire the corrections.

Ship's head by compass.	Disturbance towards the west.			Ship's head by compass.	Disturbance towards the west.		
	1840.	1841.	Mean.		1840.	1841.	Mean.
N.	+1° 10′	−0° 26′	+0° 22′	S.	−0° 49′	+0° 43′	−0° 03′
N. by W.	+0 24	−1 14	−0 25	S. by E.	−0 01	+2 32	+1 15
N.N.W.	−0 40	−2 01	−1 20	S.S.E.	+0 38	+3 06	+1 52
N.W. by N.	−1 54	−2 34	−2 14	S.E. by S.	+1 12	+3 51	+2 32
N.W.	−2 10	−2 55	−2 32	S.E.	+1 35	+4 34	+3 04
N.W. by W.	−2 58	−3 13	−3 05	S.E. by E.	+2 35	+5 01	+3 48
W.N.W.	−3 18	−3 51	−3 35	E.S.E.	+3 17	+4 45	+4 01
W. by N.	−3 39	−4 32	−4 06	E. by S.	+3 12	+5 21	+4 17
W.	−4 15	−4 59	−4 37	E.	+3 38	+5 07	+4 22
W. by S.	−4 13	−4 56	−4 35	E. by N.	+3 54	+4 46	+4 20
W.S.W.	−4 27	−4 41	−4 34	E.N.E.	+3 30	+4 06	+3 48
S.W. by W.	−4 39	−4 19	−4 29	N.E. by E.	+3 21	+3 45	+3 33
S.W.	−4 06	−3 40	−3 53	N.E.	+3 12	+3 08	+3 10
S.W. by S.	−3 36	−2 50	−3 13	N.E. by N.	+2 50	+2 39	+2 45
S.S.W.	−2 30	−2 15	−2 22	N.N.E.	+2 26	+1 30	+1 58
S. by W.	−1 39	−0 19	−0 59	N. by E.	+2 19	+0 38	+1 28

Employing the same formula as before, and forming equations from the observations on the twenty-eight points, being all the points excepting the north, south, east and west, we obtain

$$10{\cdot}1036\, b = +\ 9{\cdot}9673$$

$$b = +\ {\cdot}9865\,;$$

and from the sum of the thirty equations, including those at east and west, we have

$$+\ 57{\cdot}89\, a = +\ 1{\cdot}0439 + {\cdot}537\, b,$$

$$a = \frac{1{\cdot}0439 + {\cdot}5297}{57{\cdot}89} = +\ {\cdot}0272.$$

On the passage from Hobarton to the Antarctic Circle, the Expedition stopped at Auckland Island for the purpose of observing on the term day of November 1840. The Erebus was not swung at this station, but with the value of θ observed on shore $-\ 73°\ 10'$, and the declination observed on board whilst at anchor, with the ship's head on the east and west points, and on the E.N.E. and W.N.W. points, we may obtain a satisfactory value for a. On the supposition of the symmetrical distribution of the iron on either side of the longitudinal midship section, the deviation occasioned by it should be the same in amount, but with opposite signs, at east and west, and also at E.N.E. and W.N.W.; the amount, however, being slightly different at east and west from that at E.N.E. and W.N.W.

From the observations at east and west we have

$$\psi' = -\ 12°\ 52' \text{ at east, and } \psi' = -\ 22°\ 55' \text{ at west;}$$

$$\psi = \frac{\psi' + \psi'}{2} = -\ 17°\ 53'{\cdot}5, \text{ and}$$

$$\delta = \pm\ 5°\ 01'{\cdot}5\,;\ \text{whence } a = +\ {\cdot}0265.$$

From the observations at E.N.E. and W.N.W.,

$\psi' = -13^\circ\ 36'$ at E.N.E., and $-22^\circ\ 06'$ at W.N.W.;

$\psi = -17^\circ\ 51'$; $\zeta' = 67^\circ\ 30'$, and $\zeta = 63^\circ\ 15'$; whence $a = \cdot 0261$.

The mean of the two pairs of observations gives $a = +\cdot 0263$.

Whilst within the Antarctic Circle only a single opportunity occurred of observing the inclination otherwise than on board, and thus of obtaining a from $a \tan \theta$ by having an assured value of θ. This was on the 8th of January 1841, in lat. $-68^\circ\ 30'$, long. $176^\circ\ 35'$, where the inclination observed on the ice with a needle in which the observation was complete by the reversal of the poles, was found to be $-83^\circ\ 35'$. The declination was observed on board on the same afternoon and following morning, as nearly as could be in the same geographical position, with the ship's head on several points, from which we may select for a determination of a those nearest to the east and west points. We have then the following observations:—

1. At W. $\frac{3}{4}$ N.	$\psi' = -46^\circ\ 02'$	4. At E. $\frac{3}{4}$ N.	$\psi' = -20^\circ\ 51'$
2. At W. by S.	$\psi' = -46\ 32$	5. At E. by S. $\frac{1}{2}$ S.	$\psi' = -19\ 58$
3. At W. by S. $\frac{1}{2}$ S.	$\psi' = -47\ 17$	6. At E. by S. $\frac{3}{4}$ S.	$\psi' = -20\ 22$

From 1. and 4. we have $\psi = \frac{\psi' + \psi'}{2} = -33^\circ\ 27'{\cdot}5$

From 3. and 5. we have $\psi = \frac{\psi' + \psi'}{2} = -33\ 37'{\cdot}5$

} Mean $-33^\circ\ 32'{\cdot}5$.

Hence

$\delta_1 = -12^\circ\ 29'{\cdot}5$	$\delta_4 = +12^\circ\ 41'{\cdot}5$
$\delta_2 = -12\ 59{\cdot}5$	$\delta_5 = +13\ 34{\cdot}5$
$\delta_3 = -13\ 44{\cdot}5$	$\delta_6 = +13\ 10{\cdot}5$;

and having thereby the values of ζ, as we have those of ζ' by observation, we obtain

$a_1 = +\cdot 0249$	$a_4 = +\cdot 0259$
$a_2 = +\cdot 0274$	$a_5 = +\cdot 0275$
$a_3 = +\cdot 0274$	$a_6 = +\cdot 0266$
Means ... $+\cdot 0266$	$+\cdot 0267$

The deviation of the compass observed on board the Erebus during the stay of the Expedition at Christmas Harbour, Kerguelen Island, in July 1840, when the ship's head was on the N.E., S.E., N.W., and S.W. points, and at the points on either side of those points, viz. N.E. by N., N.E. by E., S.E. by S., S.E. by E., &c., will furnish an additional determination of the value of b:

	δ.	ζ'.	ζ.
N.W. by N.	−2·12	33 45	31 33
N.W.	−2·07	45 00	42 53
N.W. by W.	−2·42	56 15	53 33
S.W. by W.	−3·52	123 45	119 53
S.W.	−3·28	135 00	131 32
S.W. by S.	−2·38	146 15	143 37
S.E. by S.	+2·45	213 45	216 30
S.E.	+3·16	225 00	228 16
S.E. by E.	+3·47	236 15	240 02
N.E. by E.	+2·08	303 45	305 53
N.E.	+2·05	315 00	317 05
N.E. by N.	+1·27	326 15	327 42

Employing these values of ζ' and ζ in the formula

$$\cos\zeta \sin\zeta' - b\cos\zeta' \sin\zeta + a\tan\theta \sin\zeta' = 0,$$

and eliminating $a\tan\theta\sin\zeta'$, we have

$$5{\cdot}7471\, b = 5{\cdot}6233\,; \qquad b = {\cdot}9785.$$

Collecting now in one view the values of a, we have as follows:—

1. From the observations at Gillingham near Chatham $a = +{\cdot}0264$
2. From the observations at Hobarton . . . . . $a = +{\cdot}0272$
3. From the observations at Auckland Island . . . $a = +{\cdot}0263$
4. From the observations in lat. −68° 30′, long. 176° 35′ $a = +{\cdot}0267$

Mean. . . . $+{\cdot}0267$

From this near accordance in the values of a, obtained in dips varying from + 69° 05′ to − 83° 35′, we are warranted in regarding the local attraction in the Erebus as due to induced magnetism; and in employing the formulæ derived from M. Poisson's fundamental equations, which are based on the hypothesis of induced magnetism only, in computing corrections for the observations made on board that ship.

For the value of b we have

From the observations at Gillingham . . . . . $b = +{\cdot}9874$
From the observations at Hobarton . . . . . $b = +{\cdot}9865$
From the observations at Kerguelen Island . . . $b = +{\cdot}9785$

Mean . . . $+{\cdot}9841$

With these values of a and b, a table of double entry was formed, having for arguments ζ' and θ; ζ' being the compass direction of the ship's head when an azimuth was observed, and θ the inclination taken from the chart formed from the observations of that element on board ship, corrected in the manner that will be shown hereafter; the corrections for the ship's local attraction in the general Table of Declinations observed in the Erebus have been taken from the Table thus formed.

In geographical positions, where the inclination made a very near approximation to $-90°$, and when azimuths observed on the same day at places sufficiently near to each other included observations on the east and west points, or on points but little removed from them, on which the corrections for the deviation might have the same, or nearly the same, value, but with opposite signs, the inclination with which the corrections have been computed has been derived from the azimuths themselves in preference to being taken from the chart. In such cases, and when a and b have been elsewhere satisfactorily determined for the ship, the amount of disturbance which her iron produces on the compass needle furnishes itself a measure of the inclination, exceeding in precision that of the dipping needle used on board. If the ship's magnetism should have already conformed to the terrestrial dip, the inclination corresponding to the disturbance of the compass is that belonging to the geographical position, and the ship herself, with merely her compass needle, would become in such rare situations an inclinometer of great delicacy. But if the change in the magnetism of the ship from that due to a former magnetic locality be not yet fully developed, the inclination thus furnished by the compass needle is on that account also preferable to that which might be taken from the chart, or to the dip observed with the dipping needle either on board or on shore, for the correction of other azimuths observed at the same time. Whenever the inclination used for the declination corrections has been thus derived, a notice is annexed in its proper place in the general table. It may be useful to give an example, and I select for that purpose the observations on the afternoon of the 16th February 1841, when, from the amount of the declination ($-112°$ or $-113°$), the Expedition had without doubt penetrated to the south of the latitude of the magnetic pole; the particular observations are as follow:—

Latitude.	Longitude.	Ship's head. ζ'.	Declination observed. ψ'.
$-76°\ 35'$	$166°\ 17'$	E. by S. $\frac{1}{2}$ S.	$-\ 64°\ 23'$
76 36	166 17	N.N.W $\frac{1}{2}$ W.	−136 19
−76 36	166 17	W.N.W.	−150 04
−76 36	166 16	N.W. by N.	−138 24
−76 36	166 16	W.	−158 51
−76 36	166 16	W. by S. $\frac{1}{2}$ S.	−156 58
−76 36	166 16	S.W. $\frac{1}{4}$ W.	−156 05
−76 36	166 17	S.W. by N.	−154 06
−76 36	166 17	S.W. $\frac{1}{4}$ S.	−142 54
−76 37	166 16	E.N.E.	− 67 01
−76 37	166 16	E. by S.	− 67 53
−76 37	166 16	E. by S.	− 66 32
−76 37	166 16	E.S.E.	− 73 45
−76 37	166 35	S.E. by E.	− 73 40

From the observations at W., and E. by S., we have the approximate values of $\psi = \frac{\psi' + \psi'}{2} = -113° 01'$; δ at W. $= -45° 50'$; $\tan\theta = \frac{\sin\delta}{\cdot 0267}$; whence $\theta = -87° 52'$.

With this approximate inclination we compute δ at E. by S. $= +45^\circ\ 04'$; and with this correction, and the same observations as before, we have more precisely

$$\psi = -112^\circ\ 38';\ \delta \text{ at W.} = -46^\circ\ 13';\ \text{and } \theta = -87^\circ\ 53'.$$

Substituting this value of θ in the formula

$$\sin\delta = \frac{2a}{1+b}\tan\theta\sin\zeta' + \frac{1-b}{1+b}\sin(\zeta'+\zeta),$$

we have the corrections and the corrected declination as follows:—

E. by S. $\frac{1}{2}$ S.	Correction $-46^\circ\ 03'$;	$\psi' = -64^\circ\ 23'$;	$\psi = -108^\circ\ 26'$
N.N.W. $\frac{1}{2}$ W.	Correction $+19\ 46$;	$\psi' = -136\ 19$;	$\psi = -116\ 33$
N.N.W.	Correction $+41\ 38$;	$\psi' = -150\ 04$;	$\psi = -108\ 26$
N.W. by N.	Correction $+23\ 31$;	$\psi' = -138\ 24$;	$\psi = -114\ 53$
W.	Correction $+46\ 13$;	$\psi' = -158\ 51$;	$\psi = -112\ 38$
W. by S. $\frac{1}{2}$ S.	Correction $+44\ 03$;	$\psi' = -156\ 58$;	$\psi = -112\ 55$
S.W. $\frac{1}{4}$ W.	Correction $+33\ 04$;	$\psi' = -156\ 05$;	$\psi = -123\ 01$
S.W. by W.	Correction $+37\ 32$;	$\psi' = -154\ 06$;	$\psi = -116\ 34$
S.W. $\frac{1}{4}$ S.	Correction $+29\ 45$;	$\psi' = -142\ 54$;	$\psi = -113\ 09$
E.N.E.	Correction $-41\ 38$;	$\psi' = -67\ 01$;	$\psi = -108\ 39$
E. by S.	Correction $-45\ 19$;	$\psi' = -66\ 32$;	$\psi = -111\ 51$
E. by S.	Correction $-45\ 19$;	$\psi' = -67\ 53$;	$\psi = -113\ 12$
E.S.E.	Correction $-42\ 18$;	$\psi' = -73\ 45$;	$\psi = -116\ 03$
S.E. by E.	Correction $-37\ 32$;	$\psi' = -73\ 40$;	$\psi = -111\ 12$
			Mean . . . $-113\ 23$

On comparing the values of ψ thus obtained from the observations on the easterly points, with those on the westerly points, it is evident that the remaining differences in the individual results are not occasioned by faults in the corrections, but that they are actual differences in the observations of azimuth. In the extreme circumstances to which the Expedition had attained, when by reason of the great amount of dip, the terrestrial force acting on the compass needle, and directing it to one part of the horizon in preference to another, was reduced to $\frac{1}{27}$th part of the whole amount of the terrestrial magnetic force in the same locality, the degree of accordance which was still preserved assuredly surpasses expectation*. The result at S.W. $\frac{1}{4}$ W. is the only one which presents an excessive discordance; and after a careful examination of the whole of the observations which the general table contains, it must be regarded

* The compass used in the Erebus was the first of the new naval compasses made under the direction of a Committee appointed by the Admiralty "for the improvement of ships' compasses." The magnet was composed of several thin plates of clock-spring suitably arranged, giving very considerable magnetic force, with a suspension improved both in mode and materials. This compass appears to have answered remarkably well in the very trying circumstances in which it was employed. Captain Ross was himself the Chairman of the Committee, which gave its services gratuitously: the other members were Captain Beaufort, R.N., Mr. Christie, Major Jervis, Captain Edward Johnson, R.N., and Lieut.-Colonel Sabine.

as a case of very unusual observation error. Were we to omit this result, the mean would become — 112° 39′. When the corrections for local attraction become so great, it is necessary to be very accurate in noting the direction of the ship's head at the same instant that the azimuth is observed, as at the points where the changes of δ for changes of ζ' are very great, an error of a degree in the direction of the ship's head will make nearly the same error in the correction; on such occasions therefore the result is liable to an additional source of observation error of serious magnitude.

We have seen that when the inclination is — 87° 53′, the sum of the deviations at east and west amounted to 92° 26′; with 10′ increase in the dip, their joint amount would have become 126° 52′. The scale which the compass needle presents for the deduction of the inclination is consequently a very large one, when the inclination is so great as that which we are now considering; and it continues to increase in magnitude, until the compass ceases altogether to indicate the direction of the horizontal component of the terrestrial force, and points unchangingly, under every alteration of the ship's head, to the direction of the general resultant of the ship.

The terrestrial dip observed with a dipping-needle on board on the 16th of February, and corrected for the ship's attraction, was — 88° 20′; that corresponding to the magnetism of the ship was, as we have seen, — 87° 53′, being a little in arrear, in a magnetic sense, of her then position.

For the constants c and d in the formula for the correction of the inclination, we have to take into account, in the first instance, a series of observations of the inclination with the ship's head successively on the sixteen principal points of the compass, made on board the Erebus at Hobarton in November 1840, before her departure for the Antarctic Circle, and a similar series made at the same place in June 1841 on her return from the south. The inclination observed on shore was — 70° 40′.

Ship's head by compass.	Inclination observed.			Ship's head by compass.	Inclination observed.		
	1840.	1841.	Mean.		1840.	1841.	Mean.
N.	−71° 52′	−71° 59′	−71° 55′·5	S.	−69° 49′	−69° 19′	−69° 34′
N.N.W.	−71 55	−72 00	−71 57·5	S.S.E.	−70 00	−69 41	−69 50·5
N.W.	−72 03	−71 45	−71 54·0	S.E.	−70 22	−70 04	−70 13
W.N.W.	−71 30	−71 24	−71 27	E.S.E.	−70 45	−70 33	−70 39
W.	−71 16	−70 55	−71 05·5	E.	−70 58	−71 08	−71 03
W.S.W.	−70 55	−70 30	−70 42·5	E.N.E.	−71 33	−71 32	−71 32·5
S.W.	−70 20	−69 56	−70 08	N.E.	−71 35	−71 57	−71 46
S.S.W.	−70 07	−69 44	−69 55·5	N.N.E.	−71 42	−71 56	−71 49

Employing for the observations between N.N.W. and S.S.W., and N.N.E. and S.S.E. the formula

$$c \cos \zeta + d \tan \theta = b \sin \zeta \operatorname{cosec} \zeta' \tan \theta',$$

and for the other points

$$c \cos \zeta + d \tan \theta = (\cos \zeta + a \tan \theta) \sec \zeta' \tan \theta',$$

and using the values of ζ computed by means of the constants a and b already determined, we have the following equations:—

N.	$+ 1{\cdot}0000\,c - 2{\cdot}850\,d = -2{\cdot}830$	S.	$-1{\cdot}0000\,c - 2{\cdot}850\,d = -2{\cdot}888$
N.N.W.	$+ {\cdot}9327\,c - 2{\cdot}850\,d = -2{\cdot}845$	S.S.E.	$- {\cdot}9110\,c - 2{\cdot}850\,d = -2{\cdot}906$
N.W.	$+ {\cdot}7351\,c - 2{\cdot}850\,d = -2{\cdot}868$	S.E.	$- {\cdot}6617\,c - 2{\cdot}850\,d = -2{\cdot}902$
N.S.W.	$+ {\cdot}4418\,c - 2{\cdot}850\,d = -2{\cdot}848$	E.S.E.	$- {\cdot}3139\,c - 2{\cdot}850\,d = -2{\cdot}880$
W.	$+ {\cdot}0761\,c - 2{\cdot}850\,d = -2{\cdot}864$	E.	$+ {\cdot}0761\,c - 2{\cdot}850\,d = -2{\cdot}858$
W.S.W.	$- {\cdot}3139\,c - 2{\cdot}850\,d = -2{\cdot}889$	E.N.E.	$+ {\cdot}4418\,c - 2{\cdot}850\,d = -2{\cdot}862$
S.W.	$- {\cdot}6617\,c - 2{\cdot}850\,d = -2{\cdot}922$	N.E.	$+ {\cdot}7351\,c - 2{\cdot}850\,d = -2{\cdot}845$
S.S.W.	$- {\cdot}9110\,c - 2{\cdot}850\,d = -2{\cdot}888$	N.N.E.	$+ {\cdot}9327\,c - 2{\cdot}850\,d = -2{\cdot}822$

Summing these equations, c is eliminated, and $d = \frac{45{\cdot}917}{45{\cdot}604} = 1{\cdot}0069$; and changing the signs in the equations from W. to E.S.E. inclusive and summing, we have $c = \frac{+{\cdot}361}{9{\cdot}9924} = +{\cdot}0361$.

A similar series of observations made at Auckland Island on the passage from Hobarton to the Antarctic Circle, furnishes values of c and d differing but slightly from the preceding. The inclination observed on shore was $-73^\circ\ 10'$.

Ship's head by compass.	Inclination observed.	Ship's head by compass.	Inclination observed.
N.	−74° 24′	S.	−72° 00′
N.N.W.	−74 34	S.S.W.	−72 17
N.N.E.	−74 09	S.S.E.	−72 05
N.W.	−74 16	S.W.	−72 36
N.E.	−74 13	S.E.	−72 38
W.N.W.	−74 08	W.S.W.	−73 09
E.N.E.	−73 43	E.S.E.	−73 02
W.	−73 32	E.	−73 26

Treating these observations in a similar manner to those at Van Diemen Island, we obtain

$$c = +{\cdot}045\,;\quad d = +1{\cdot}0039.$$

Giving double weight to the observations at Hobarton, as representing a double series, we have $c = +{\cdot}039$; and $d = +1{\cdot}006$.

With these values of the constants in the formulæ

$\tan \theta' = \frac{c}{b}\left(\frac{d}{c}\tan\theta + \cos\zeta\right)\sin\zeta' \operatorname{cosec}\zeta$, from N.E to S.E., and from N.W. to S.W.

$\tan \theta' = c\,\frac{\left(\frac{d}{c}\tan\theta + \cos\zeta\right)\cos\zeta'}{a\tan\theta + \cos\zeta}$ on other points,

a table of double entry was formed for the corrections of the observations of in-

clination in the Erebus, having for arguments θ and ζ'; the corrections in the general Table of the inclination observations were thus obtained.

We may compute the value of the remaining constant A′ from the variations of the magnetic intensity observed on board the Erebus at Hobarton with Mr. Fox's intensity apparatus, with the ship's head on the sixteen principal points of the compass; two series of such observations were made, one in October 1840 with needle R. F. 4, the other in July 1841 with needle R. F. 5; expressing the value of the intensity on shore by $1{\cdot}82 = \varphi$, the several values on board ship are shown in the following Table:—

Ship's head by compass.	Intensity.				
	October 1840.	July 1841.	Means.		
N.	1·792	1·806	1·799	1·799	$= \varphi'$
N.N.E.	1·787	1·803	1·795	1·835	$= \varphi'$
N.N.W.	1·807	1·818	1·812		
N.E.	1·789	1·813	1·801	1·805	$= \varphi'$
N.W.	1·803	1·816	1·809		
E.N.E.	1·816	1·821	1·818	1·8245	$= \varphi'$
W.N.W.	1·830	1·832	1·831		
E.	1·828	1·823	1·826	1·828	$= \varphi'$
W.	1·832	1·829	1·830		
E.S.E.	1·830	1·829	1·830	1·836	$= \varphi'$
W.S.W.	1·848	1·837	1·842		
S.E.	1·842	1·853	1·848	1·853	$= \varphi'$
S.W.	1·862	1·855	1·858		
S.S.E.	1·858	1·859	1·859	1·8595	$= \varphi'$
S.S.W.	1·863	1·857	1·860		
S.	1·864	1·864	1·864	1·864	$= \varphi'$

Employing the formula

$$\frac{\phi'}{A'\phi} \sin \theta' = c \cos \theta \cos \zeta + d \sin \theta$$

with the values of θ' and ζ computed by means of the constants a, b, c and d, already deduced, and with the observed values of φ, θ, and φ', we have A′ as follows:—

At	N.	$A' = 0{\cdot}997$
At	N.N.E. and N.N.W.	$A' = 0{\cdot}996$
At	N.E. and N.W.	$A' = 0{\cdot}998$
At	E.N.E. and W.N.W.	$A' = 0{\cdot}993$
At	E. and W.	$A' = 0{\cdot}998$
At	E.S.E. and W.S.W.	$A' = 1{\cdot}002$
At	S.E. and S.W.	$A' = 1{\cdot}000$
At	S.S.E. and S.S.W.	$A' = 1{\cdot}002$
At	S.	$A' = 1{\cdot}002$
	Mean. . . .	$0{\cdot}999$

We obtain the same result if we employ the *observed* values of θ' instead of the

computed values; in this case the inclination and total intensity being both furnished at the several points by observation with Mr. Fox's apparatus, we have the ratios of the horizontal intensity $\frac{\phi' \cos \theta'}{\phi \cos \theta}$ on board as follows:—

N.	= 0·9262;	E.N.E. W.N.W.	= 0·9608;	S.S.E. S.S.W.	= 1·0615;
N.N.E. N.N.W.	= 0·9308;	E. W.	= 0·9838;	S.E. S.W.	= 1·0432;
N.E. N.W.	= 0·9340;	S.	= 1·0800;	E.S.E. W.S.W.	= 1·0084;

From which by the formula

$$H = A' (\cos \zeta \cos \zeta' + b \sin \zeta \sin \zeta' + a \tan \theta \cos \zeta'),$$

we have

At	N.	$A' = \frac{0·9262}{0·9239}$	= 1·003
At	N.N.E. and N.N.W.	$A' = \frac{0·9308}{0·9270}$	= 1·004
At	N.E. and N.W.	$A' = \frac{0·9340}{0·9374}$	= 0·996
At	E.N.E. and W.N.W.	$A' = \frac{0·9608}{0·9555}$	= 1·006
At	E. and W.	$A' = \frac{0·9838}{0·9917}$	= 0·992
At	E.S.E. and W.S.W.	$A' = \frac{1·0084}{1·0122}$	= 0·996
At	S.E. and S.W.	$A' = \frac{1·0432}{1·0433}$	= 0·999
At	S S.E. and S.S.W.	$A' = \frac{1·0615}{1·0673}$	= 0·994
At	S.	$A' = \frac{1·0800}{1·0761}$	= 1·004

$\overline{A' = 0·999}$ Mean.

The correction for the ship's attraction in the general table of the intensities observed in the Erebus, have been computed with this value of A′ used in the formula $A' \bar{c} \left(\frac{d}{c} \tan \theta + \cos \zeta\right) \cos \theta \operatorname{cosec} \theta'$; θ being taken from the chart formed from the observations of the inclination, and θ' and ζ from the tables with the arguments θ and ζ'.

Deduction of the Constants in Her Majesty's Ship Terror.—For these we have, in the first place, the observations at Gillingham, in September 1839, as follows: $\theta = 69^\circ\ 05'$.

Ship's head by compass.	Attraction towards the west.	Ship's head by compass.	Attraction towards the west.	Ship's head by compass.	Attraction towards the west.	Ship's head by compass.	Attraction towards the west.
N.	+0°·11	W.	+5°·55	S.	−0°·8	E.	−5°·22
N. by W.	+1·35	W. by S.	+5·17	S. by E.	−0·51	E. by N.	−5·50
N.N.W.	+2·31	W.S.W.	+4·39	S.S.E.	−1·42	E.N.E.	−5·22
N.W. by N.	+3·9	S.W. by W.	+3·50	S.E. by S.	−2·30	N.E. by E.	−4·27
N.W.	+3·58	S.W.	+3·8	S.E.	−3·9	N.E.	−3·37
N.W. by W.	+4·39	S.W. by S.	+2·24	S.E. by E.	−3·40	N.E. by N.	−2·37
W.N.W.	+5·8	S.S.W.	+1·38	E.S.E.	−4·34	N.N.E.	−1·40
W. by N.	+5·35	S. by W.	+0·55	E. by S.	−4·57	N. by E.	−0·33

We perceive by this Table that the masses of iron acting on the compass needle of the Terror were distributed, as in the Erebus, symmetrically, or very nearly so, on either side of the vertical plane passing through the longitudinal midship section. Using the formula

$$\cos\zeta \sin\zeta' - b \sin\zeta \cos\zeta' = a \tan\theta \sin\zeta',$$

and forming equations for the several points, we have from the sum of those from N. by W. to W. by N., and from N. by E. to E. by N.,

$$-4{\cdot}4516 + 5{\cdot}3295\, b = +23{\cdot}946\, a;$$

and for the sum of the equations on the points from S. by W. to W. by S., and from S. by E. to E. by S.,

$$-5{\cdot}5092 + 4{\cdot}7551\, b = -23{\cdot}946\, a,$$

whence we derive $b = +\cdot9877$, and $a = +\cdot0339$; or including the observations at east and west $a = \cdot0343$.

We have next to consider a similar series of observations made in the River Derwent, near Hobarton, in Van Diemen Island, on October 20th, 1840, soon after the first arrival of the Expedition at that station; they were as follows:—

Ship's head by compass.	Attraction towards the west.	Ship's head by compass.	Attraction towards the west.	Ship's head by compass.	Attraction towards the west.	Ship's head by compass.	Attraction towards the west.
N.	+0° 42′·4	W.	−4° 36′·6	S.	−0° 11′·6	E.	+4° 24′·4
N. by W.	−0 23·6	W. by S.	−4 44·6	S. by E.	+0 52·4	E. by N.	+4 11·4
N.N.W.	−1 20·6	W.S.W.	−4 52·6	S.S.E.	+1 56·4	E.N.E.	+4 07·4
N.W. by N.	−2 20·6	S.W. by W.	−5 22·6	S.E. by S.	+2 38·4	N.E. by E.	+3 27·4
N.W.	−3 25·6	S.W.	−4 23·6	S.E.	+3 29·4	N.E.	+3 02·4
N.W. by W.	−3 56·6	S.W. by S.	−3 31·6	S.E. by E.	+4 00·4	N.E. by N.	+2 37·4
W.N.W.	−4 01·6	S.S.W.	−2 03·6	E.S.E.	+4 43·4	N.N.E.	+2 11·4
W. by N.	−4 06·6	S. by W.	−1 37·6	E. by S.	+4 28·4	N. by E.	+1 26·4

In the Terror, as in the Erebus, the disturbance had changed its sign in passing from the northern to the southern hemisphere: the symmetrical distribution of the

iron on either side of the principal axis of the ship continued as at Gillingham, the observations showing only those very small differences in the exact points of no disturbance, which have been remarked in the Erebus, and which we may be content to view as accidental differences. From these observations, pursuing the usual course, we obtain $b = +\cdot9873$, and $a = +\cdot0292$. Here also, as in the case of the Erebus, the observations on the first arrival at Hobarton give a somewhat less value for $a \tan \theta$ than those at Gillingham. It is possible that a similar series of experiments may have been repeated in the Terror on the return to the same station in 1841, but no record of it has been received in England, and the observations of 1840 are expressly referred to, in a note appended to them, as furnishing the corrections for the declinations observed between the months of October 1840 and April 1841. I think it not improbable that if the ship were swung in 1841, the resulting value of $a \tan \theta$ will prove, as in the Erebus, to be somewhat greater than in 1840, and that the mean value of a at Hobarton will thereby come into a closer accord with its value at Gillingham.

The practical effect of so small a difference is however unimportant, and I have taken a in round numbers for the declinations under consideration $= +\cdot030$, and $b = +\cdot9875$, and have computed with these values the Tables from which the corrections for the Terror's declinations have been taken.

Part of the materials required for the correction of the observations of inclination and intensity, made in the Terror during the voyage under notice, not having yet reached England, the deduction of the constants c, d, and A' for that ship has been postponed.

Index Correction of Needle R. F. 4 *for the Observations of the Inclination in the Erebus.*—The observations of the inclination at sea on board the "Erebus," were made with Mr. Fox's apparatus for determining the magnetic inclination and intensity, and one needle, R. F. 4, was used throughout the observations which are now under consideration. The poles were not reversed; the circle was used with the face east only, and the needle with its marked side towards the observer. An index correction is therefore required for all the sea observations, and must be sought by comparing the inclination shown by the same circle and needle when observed with in the same manner on shore, at stations where the inclination was otherwise determined in an independent and complete manner, viz. by needles of which the poles were reversed, and the needle and circle used in the eight ordinary positions.

The determinations of this description made by the Expedition at the Magnetic Observatory at Van Diemen Island in 1840 and 1841, at Auckland Island in November and December 1840, at Campbell's Island in December 1840, and on the ice in lat. $-$ 68° 28′, long. 176° 32′, on the 8th of January 1841,—furnishing the required comparison,—were as follows:—

Observations of the Inclination, with Needles whose Poles were reversed, made at the Magnetic Observatory in Van Diemen Island in 1840, 1841.

Date.	Hour.	Needle.	Poles. α direct. β reversed.	Mean.	Remarks.
1840.	h m		° ′	° ′	
September 12.	11 00 A.M.	R G 1	α −70 32·1	−70 37·1	Needles belonging to H.M.S. Erebus.
			β −70 42·1		
14.	11 20 A.M.	R G 2	α −70 35·6	−70 38·2	
			β −70 40·9		
21.	11 30 A.M.	R 4	α −70 39·7	−70 37·6	
			β −70 35·5		
21.	1 30 P.M.	R 10	α −70 49·8	−70 51·7	
			β −70 53·7		
22.	11 20 A.M.	R 6	α −70 46·5	−70 45·8	
			β −70 45·2		
22.	2 00 P.M.	R 7	α −70 46·4	−70 45·8	
			β −70 45·2		
October 5.	11 00 A.M.	R 6	α −70 42·4	−70 43·2	
			β −70 44·0		
5.	2 00 P.M.	R 7	α −70 43·3	−70 42·0	
			β −70 40·4		
15.	2 00 P.M.	D 1	α −70 31·4	−70 51·2	Needles belonging to Sir JOHN FRANKLIN.
			β −71 11·1		
16.	11 00 A.M.	D 2	α −70 08·4	−70 37·4	
			β −71 06·4		
19.	10 20 A.M.	C 1	α −70 42·0	−70 38·3	Needles belonging to H.M.S. Terror.
			β −70 34·5		
19.	11 00 A.M.	C 2	α −70 34·3	−70 37·7	
			β −70 41·2		
1841.					
April 14.	11 20 A.M.	R 4	α −70 38·6	−70 38·7	Needles belonging to H.M.S. Erebus.
			β −70 38·8		
14.	2 00 P.M.	R 10	α −70 46·5	−70 42·9	
			β −70 39·3		
15.	10 50 A.M.	R 6	α −70 34·7	−70 39·0	
			β −70 43·3		
15.	3 30 P.M.	R 7	α −70 40·6	−70 37·2	
			β −70 33·9		
16.	1 30 P.M.	R G 1	α −70 34·4	−70 36·3	
			β −70 38·2		
17.	11 20 A.M.	R G 2	α −70 35·7	−70 37·3	
			β −70 39·0		
24.	11 00 A.M.	C 1	α −70 41·1	−70 38·0	Needles belonging to H.M.S. Terror.
			β −70 35·0		
24.	Noon.	C 1	α −70 49·3	−70 43·1	
			β −70 37·0		
24.	2 00 P.M.	C 2	α −70 36·9	−70 34·4	
			β −70 31·9		
30.	Noon.	C 1	α −70 31·2	−70 36·4	
			β −70 41·7		
30.	Noon.	C 2	α −70 33·0	−70 39·5	
			β −70 46·0		
May 10.	2 20 P.M.	R 4	α −70 46·6	−70 42·9	Needles belonging to H.M.S. Erebus.
			β −70 39·1		
10.	4 15 P.M.	R 10	α −70 53·9	−70 43·9	
			β −70 34·0		
11.	10 30 A.M.	R 4	α −70 46·2	−70 42·4	
			β −70 38·6		
18.	10 45 A.M.	R 4	α −70 45·4	−70 40·9	
			β −70 36·3		
18.	2 15 P.M.	R 10	α −70 47·1	−70 40·5	
			β −70 33·1		
June 21.	9 45 A.M.	R 10	α −70 45·8	−70 40·4	
			β −70 35·1		
21.	10 45 A.M.	R 4	α −70 45·1	−70 40·8	
			β −70 36·5		
				−70 40·7	General Mean.

Observations of the Inclination with Needles whose poles were reversed, made at the Magnetic Observatory at Auckland Island.

Date.	Hour.	Needle.	Poles. α direct. β reversed.	Mean.	Remarks.
1840.	h m		° ′	° ′	
November 23.	10 20 A.M.	R 4	α −73 17·9 β −73 08·2	−73 13·1	Needles belonging to H.M.S. Erebus.
23.	1 00 P.M.	R 10	α −73 14·4 β −73 12·4	−73 13·4	
23.	2 40 P.M.	R 6	α −73 15·7 β −73 12·9	−73 14·3	
23.	3 30 P.M.	R 7	α −73 14·7 β −73 11·6	−73 13·2	
25.	11 00 A.M.	R G 1	α −73 06·6 β −73 17·0	−73 11·8	
25.	1 00 P.M.	R G 2	α −73 04·0 β −73 11·6	−73 07·8	
27.	3 00 P.M.	C 1	α −73 08·7 β −73 02·9	−73 05·8	H. M. S. Terror.
27.	4 00 P.M.	C 2	α −73 08·2 β −72 55·5	−73 01·8	
December 4.	1 40 P.M.	R G 1		−73 12·2	H. M. S. Erebus.
				−73 10·4	General Mean.

Observations of the Inclination with Needles whose poles were reversed, at Campbell Island.

Date.	Hour.	Needle.	Poles. α direct. β reversed.	Mean.	Remarks.
1840.	h m		° ′	° ′	
December 15.	9 30 A.M.	C 1	α −73 55·7 β −73 48·4	−73 52·1	Needles belonging to H.M.S. Terror.
15.	10 30 A.M.	C 2	α −73 51·2 β −73 43·4	−73 47·3	
15.	10 30 A.M.	R 4	α −73 56·5 β −73 50·7	−73 50·6	Needles belonging to H.M.S. Erebus.
15.	11 00 A.M.	R 10	α −74 01·5 β −73 57·2	−73 59·4	
15.	Noon.	R 6	α −73 45·8 β −73 49·5	−73 47·7	
15.	1 00 P.M.	R 7	α −73 49·5 β −73 53·3	−73 51·4	
				−73 51·4	General Mean.

Inclination observed on Ice, in latitude — 68° 28′, longitude 176° 32′, with a Needle the poles of which were reversed.

Date.	Hour.	Needle.	Poles. α direct. β reversed.	Mean.	Remarks.
1841.	h m		° ′	° ′	
January 8.	3 20 P.M.	R 4	α −83 35·3 β −83 35·8	−83 35·6	H. M. S. Erebus.

The inclinations observed at the four preceding stations with needle R. F. 4, with the face of the circle east, and the marked side of the needle facing the observer, were as follows:—

Van Diemen Island	— 71° 06′·5 ; true inclination	— 70° 40′·7 ; index correction	— 25′·8
Auckland Island . .	— 73 41·3 ; true inclination	— 73 10·4 ; index correction	— 30·9
Campbell Island . .	— 74 20·3 ; true inclination	73 51·4 ; index correction	— 28·9
On ice, Jan. 8, 1841	— 84 02·9 ; true inclination	— 83 36·6 ; index correction	— 27·3
		Mean . . .	— 28·2

An index correction of — 28′ has therefore been applied in the general table to the mean of the observations on each day with needle R. F. 4, in order to give the true or correct inclination, as it would have been observed by a needle in which the complete process of observation had been gone through.

Elements of Calculation of the Intensity Observations.—Of the intensity observations made with Mr. Fox's apparatus on board the Erebus, during the period under consideration, a large proportion was of the angles of deflection produced by deflecting magnets. A spare needle belonging to the apparatus was used as a deflector, and was fitted into a cylindrical case having screws at both ends, so that the needle could be applied either as "deflector N" with its north pole opposite that division of the circle which the north pole of the dipping needle had previously indicated as the dip, —or as "deflector S" with its south pole similarly applied to the opposite division of the circle.

The deflectors belonging to the apparatus, being too weak to produce sufficient deflections when used separately, were employed only conjointly, and are designated as "deflectors N and S." The angles of deflection varied in different localities during the voyage in round numbers as follows: deflector S from 50° to 45°; deflector N from 48° to 43°; and N and S from 23° to 20°.

To obtain the equivalent weight to the deflecting force of the deflectors at these angles, we have comparative observations of the angles produced by the deflectors and by weights at Hobarton, Auckland, and Campbell Islands, on the ice on the 8th January in lat. — 68° 28′, long. 176° 32′, and on five different occasions on board ship when the weather and other circumstances were favourable, viz. on February 8th and 10th, March 22nd, April 1st and 6th. These were exclusive of an attempt on the 1st of February, which failed on account of the ship having too much motion.

Hobarton is necessarily the primary station of the whole series of observations made in this portion of the voyage, being the only station at which an independent determination of the intensity has been made. It is also very suitable for a base station, because we may expect that the absolute as well as relative intensity will be determined with great precision at the magnetic observatory established there, and will ultimately furnish a correction, should one be needed, for the provisional value which must for the present be employed.

Captain Ross commenced the experiments for measuring the absolute horizontal intensity at Hobarton, by obtaining five results with the large magnets of his observatory magnetometers on different days whilst the Expedition was refitting there. The details of these will be published with the other magnetometric observations of the voyage; the results, which have been computed by Lieutenant GOODENOUGH of the Royal Artillery from the data received from Captain Ross, are as follows:—

October 13, 1840	4·491	Mean 4·573*.
May 3, 1841.....	4·626	
May 21, 1841.....	4·602	
June 5, 1841	4·579	
June 25, 1841	4·566	

The dip being $-70^\circ\ 40'$ at Hobarton, and the approximate value of the absolute horizontal intensity at Woolwich 3·72† with the dip of $69^\circ\ 03'$, the corresponding value of the total intensity at Hobarton in the arbitrary scale (London = 1·372) is 1·821. The previous *relative* observations, collected in No. I. of these Contributions, had given 1·819 as the mean of three determinations, viz.

FITZROY	1836	1·817	Mean 1·819.
FRANKLIN and SABINE.....	1837 1838	1·810	
WICKHAM.....	1838	1·830	

The closeness in the accordance of the mean results by the two methods can only be viewed as accidental, because the probable error of the absolute determination, estimated from the differences in the partial results, is far greater than the difference of the two methods; but it fully warrants 1·82 being now taken as a provisional value of the total intensity at Hobarton, as the base station of the observations which form the subject of this number, regarding $1{\cdot}82 + e$ as the true value, and e as a small correction to be determined hereafter, applicable to the whole series.

The weights employed in deflecting the intensity needle were from half a grain to six grains. It was soon found that half a grain was too small to give satisfactory results, and observations with that weight were discontinued. I have not therefore taken the observations made with it into account, except at Hobarton, where they

* Since these pages were written I have received the results of twenty-two monthly determinations of the absolute horizontal intensity at the magnetic observatory at Hobarton (ten in 1841 and twelve in 1842) made and computed by Lieutenant KAY, R.N., and the naval officers under his direction. The mean in 1841 is 4·553, the partial results varying from 4·601 to 4·509; and the mean in 1842, 4·513, the partial results varying from 4·443 to 4·568. The discordance in the partial results of these observations is scarcely less than in those of Captain Ross: there is also a considerable disagreement in the means of the three series, which may not improbably be diminished when the particulars of the several observations shall have been carefully examined, though the partial results must still be expected to differ much more widely than could be desired. It is hoped that such differences will be reduced within much smaller limits by the use of the improved apparatus which has recently been supplied to the Hobarton as well as to the other colonial observatories.

† Philosophical Transactions, 1843, Art. X.

assist in computing the angles corresponding to the weights of 4, 5, and 6 grains, which were not commenced with so soon. The observations with the weights on the days above stated, when the weights and deflecting magnets were employed in comparison, are collected in one view and given in the subjoined Table, in which are also shown the angles of deflection produced by the deflecting magnets on the same occasions.

1840.	Latitude.	Longitude.	Weights. Grains.	Weights. Angles of deflection.	Thermometer.	Intensity deduced.		Angles of deflection by Deflector S.	Deflector N.	Deflectors N and S.
	° ′	° ′		° ′	°					
			½	2 41·4	52					
			1	5 22·7						
			1½	8 14·6						
	Hobarton.		2	10 49·6						
Sept. 18.	−42 52	147 24	3	16 15		1·820		50 01	Not observed	Not observed.
			4	22 06						
			5	28 03·5						
			6	34 21						
			1	5 18·4	52	1·844				
	Auckland Island.		1½	8 02·2		1·867	1·852			
Nov. 24.	−50 33	166 19	2	10 36·8		1·856		49 29	46 50·2	Not observed.
			3	15 58·3		1·851				
			2	10 12·1	52	1·930				
Dec. 14.	Campbell Island.		3	15 30·2		1·906		49 20·5	46 10·5	Not observed.
	−52 44	169 10	1	4 59·2		1·963	1·927			
15.			2	10 12·6		1·929		49 17	46 45·7	Not observed.
			3	15 30·2		1·906				
1841.										
	On ice.		3	14 34·3	42	2·024	2·017			
Jan. 8.	−68 28	176 32	6	30 38·7		2·015		47 16	44 17	21 55
			2	9 15·6		2·124				
Feb. 8.	−77 47	187 18	3	14 14·6	32	2·071		47 03	44 23	22 03
			6	30 30·9		2·023	2·053			
			2	9 31		2·067				
Feb. 10.	−77 39	187 06	3	14 37		2·019		46 55·5	44 14	21 55·9
			6	30 34·7		2·019				
			2	9 39	34	2·040				
			3	14 13		2·074				
Mar. 22.	−63 09	139 28	3	14 18·6		2·062	2·041	46 54	44 22	22 00
			4	19 34·1		2·045				
			5	25 11·2		2·012				
			2	9 26·2	40	2·086				
			3	14 07·7		2·086				
April 1.	−58 13	135 18	4	19 39·7		2·035	2·037	46 55	44 41	22 30
			5	25 28·5		1·990				
			6	31 08·5		1·987				
			1	5 14·2	58	1·870				
			2	10 37·2		1·885				
April 6.	−43 41	146 03	3	15 59·4		1·850	1·885	50 01	46 40	23 17
			4	21 21		1·881				
			5	26 29·7		1·919				
			6	32 58·5		1·887				

With the angles of deflection at Hobarton produced by the weights ½, 1, 1½, 2 and 3 grains, we obtain the equivalent weight 8·15 grains to the angle $v = 50° 01'$ of deflector S at the same station; and thence the value of the constant $\frac{w}{I \sin v} = 5{\cdot}84$

in the formula for the equivalent weights to the force of the deflector observed elsewhere, viz.

$$w' = 5{\cdot}84\, I' \sin v'.$$

From the values of w' thus obtained, the subjoined Table has been formed of w' for each 20′ of v for deflector N and deflector S, in the manner described in No. III. of these Contributions*; and with these values of w' we have the intensities I' relative to the force 1·820 at Hobarton computed by means of the formula

$$I' = \frac{I \sin v}{w} \cdot w' \operatorname{cosec} v' = {\cdot}171\, w' \operatorname{cosec} v'.$$

Deflector S.		Deflector N.	
v'.	w'.	v'.	w'.
° ′	gr.	° ′	gr.
50 0	8·15	47 20	7·90
49 40	8·23	47 00	7·95
49 20	8·30	46 40	8·00
49 00	8·37	46 20	8·06
48 40	8·44	46 00	8·11
48 20	8·51	45 40	8·16
48 00	8·56	45 20	2·21
47 40	8·61	45 00	8·25
47 20	8·65	44 40	8·30
47 00	8·70	44 20	8·33
46 20	8·65	44 00	8·37

The results with the original magnets of the apparatus used conjointly, and designated as "N and S," are much inferior in precision to those obtained with the spare intensity needle used as a deflector. The angles of deflection were much less, owing to the force of the magnets, even when used conjointly, being very much inferior to that of the spare needle. The observations are of course given in the Table with the others, but as their results present on the one hand no systematic difference from those with the stronger deflector, and on the other hand are of inferior value, by reason of the extent of their fluctuation,—and as they could only tend therefore to impair the individual accuracy of the results with the stronger deflector and with the weights,—they have been omitted in the means.

Comparison of the Intensities deduced by the Weights and by the Deflectors at the Stations at which both were employed.

Station.	Latitude.	Longitude.	Deflector S.	Deflector N.	Weights.
	° ′	° ′			
Auckland Island..	−50 33	166 19	1·862	1·873	1·852
Campbell Island..	−52 41	169 10	1·875	1·898	1·927
On ice.....	−68 28	176 32	2·021	2·044	2·017
At sea.....	−77 17	187 18	2·034	2·038	2·053
At sea.....	−77 39	187 06	2·041	2·047	2·053
At sea.....	−63 00	139 28	2·043	2·039	2·041
At sea.....	−58 13	135 18	2·042	2·017	2·037
At sea.....	−43 41	146 03	1·820	1·884	1·885

* Philosophical Transactions for 1842, Art. II.

General Remarks.—The Tables of the declination observations in the Erebus and Terror, and of the inclination and intensity observations in the Erebus, furnish a full opportunity, for those who may desire it, to examine how far the corrections computed in the manner which has been described fulfil their purpose.

The three charts which accompany this number of the "Contributions," exhibit to the eye the determinations contained in the Tables, arranged in their respective localities, by which their general harmony may be, in some measure, judged of. The faint lines, representing the principal curves of the magnetic elements, are drawn in approximate conformity with the observations, and are designed merely to assist the eye in taking a first general view of the results. When the determinations of the succeeding voyages shall have been laid down in a similar manner on a south polar chart, they will furnish the means of judging of the course of the magnetic curves more comprehensively and accurately, and of tracing them accordingly.

Rather more attention has been bestowed on the lines in the chart of the inclination than in the other two charts, because it has been used for the values of θ in the declination-corrections. Having had experience in drawing similar charts on former occasions, and particularly those of the Magnetic Survey of the British Islands, I have no hesitation in recognising with Captain Ross, that as great, and greater, discrepancies are to be looked for, and must frequently be experienced, in magnetic surveys conducted on land, than in those made at sea. The chart of the inclination which accompanies this paper, constructed from observations made at sea, and certainly not under the most favourable circumstances, except in the skill of the observers, exhibits by no means a greater measure of discrepancy than the magnetic chart of Scotland or of Ireland: and it may be further noticed, that the only results which have been excluded altogether from the chart, by reason of their excessive discordance as well with each other as with the general body of results, are some that were made on islands which presented themselves in the course of the voyage.

I cannot close this section without calling the attention of all who take interest in the results of these researches, to the invaluable aid for which magnetical science is indebted to Mr. Fox. Without his instrument and method, which render observations of inclination and intensity made at sea nearly or altogether equal to those which could be made on land or on ice, such were the difficulties of the navigation, and such the inaccessible though magnificent character of the coast that was discovered, that two of the three charts herewith presented, and especially that of the intensity, must have offered an appearance very different from that which they now exhibit.

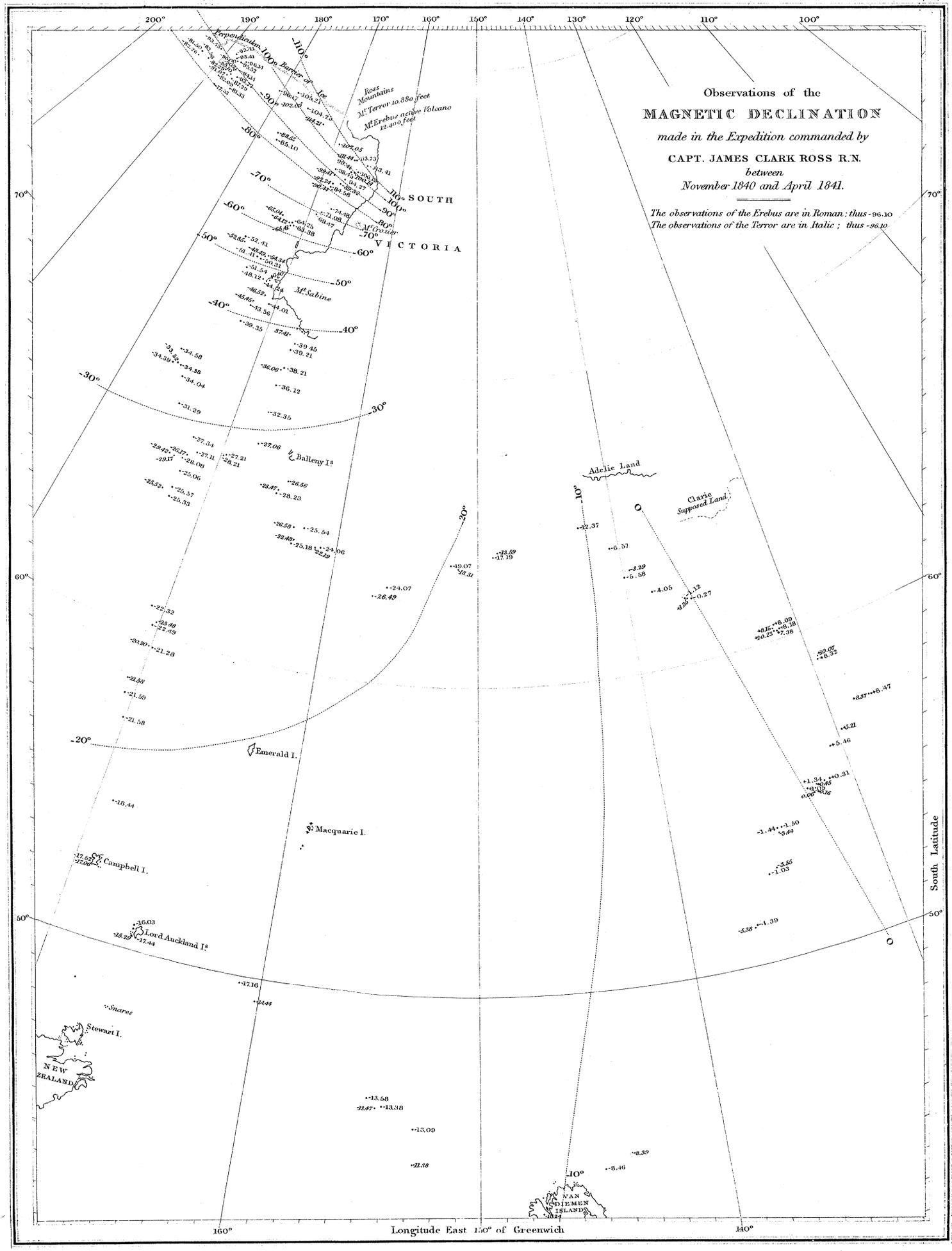
To enter into a lengthened comparison of the results now communicated with those of preceding observers, which have been embodied in magnetic maps constructed either directly from the phenomena, or by means of the mathematical theory of M. Gauss, would be to anticipate the more proper opportunity which will present itself, when the whole of the materials collected by the Antarctic Expedition shall be

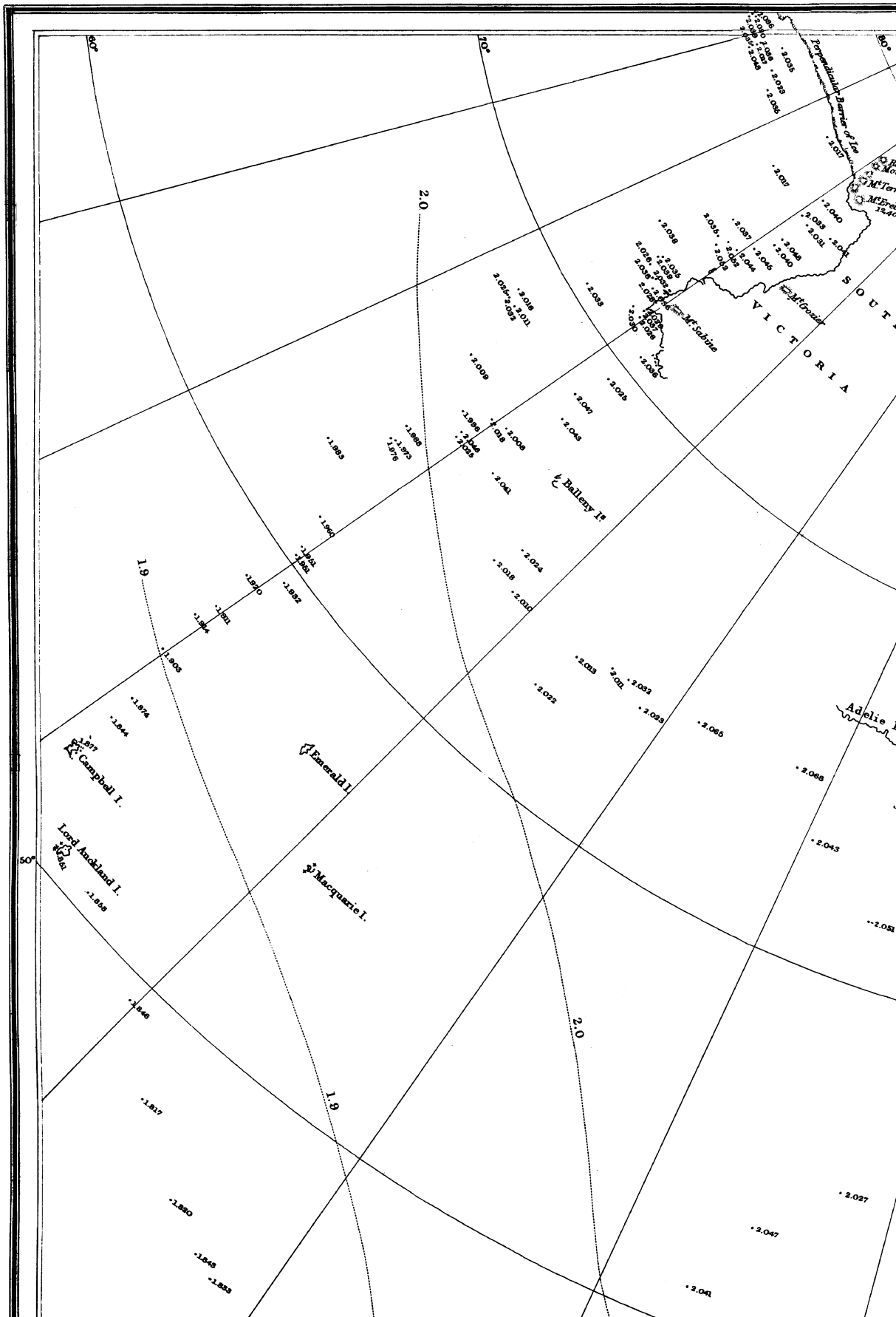
available for the comparison. A few remarks however on prominent points may be looked for on the present occasion.

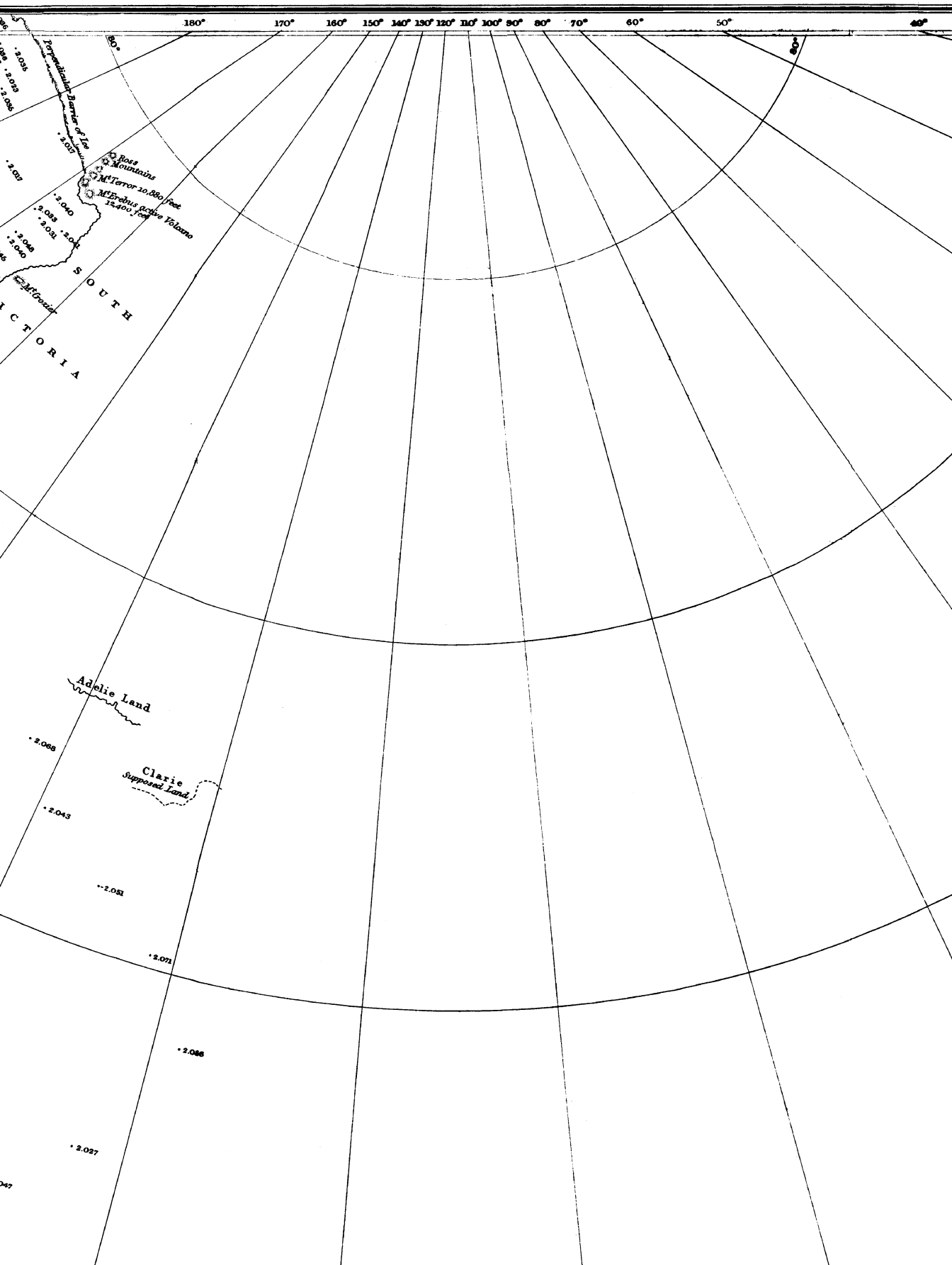
1. The observations of declination, particularly those which point out the course of the lines of 0 and of 10° east, indicate a more westerly position than the one assigned by M. Gauss in the "Atlas des Erdmagnetismus" for the spot in which all the lines of declination unite. The progression of the lines in the southern hemisphere generally, from secular change, is from east to west; the difference consequently is in the direction in which a change should be found in comparing earlier with more recent determinations.

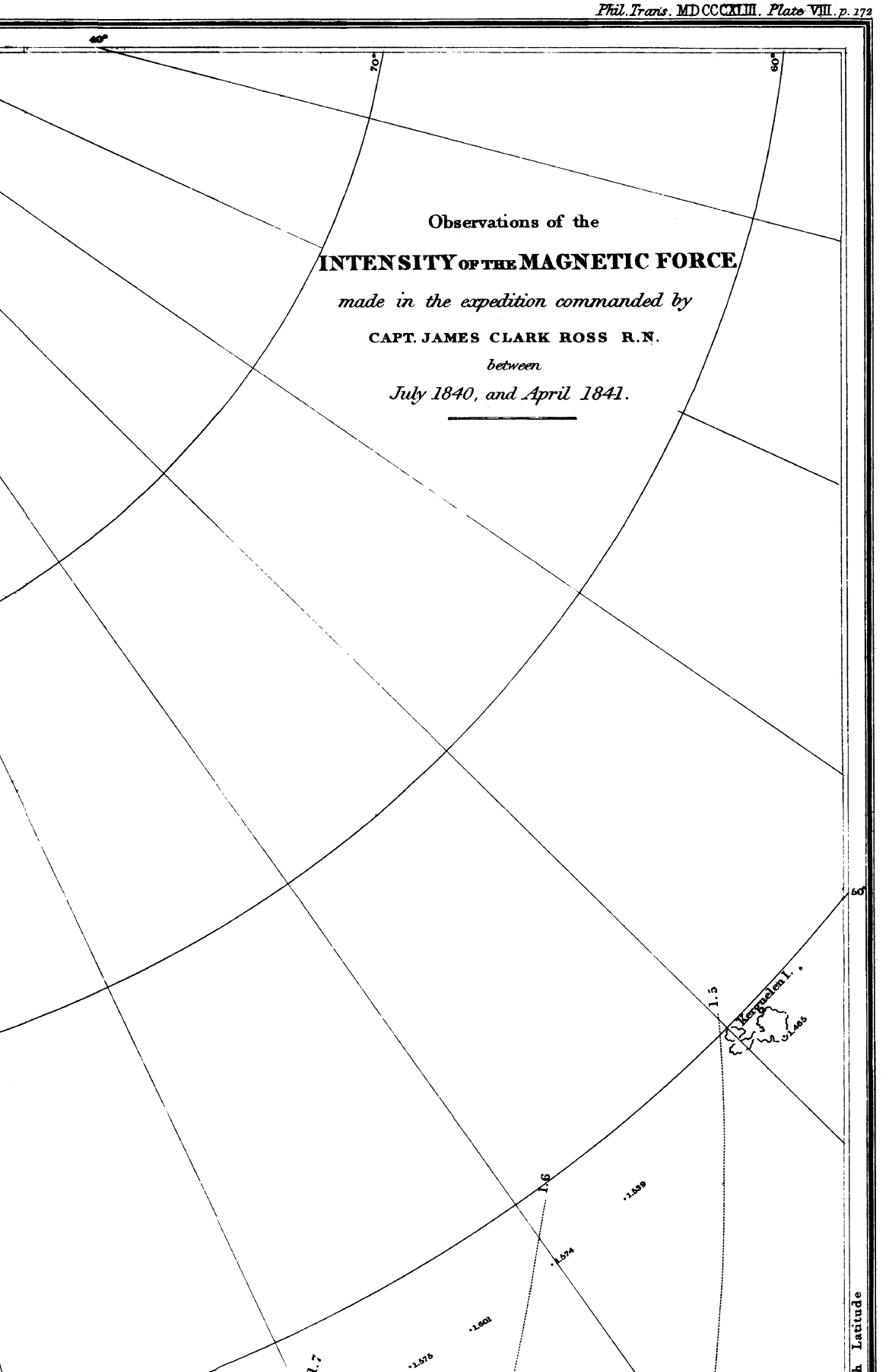
2. The general form of the curves of higher inclination in the southern hemisphere is much more analogous to that in the northern, than appears in M. Gauss's maps. For example, the isoclinal line of — 85° instead of being nearly circular, as represented in the 3te Abtheilung of Pl. XVI. of the "Atlas des Erdmagnetismus," is an elongated ellipse, much more nearly resembling in form and dimensions the ellipse of 85° of inclination in the northern hemisphere in the same work, Pl. XVI. 2te Abtheilung. The analogy between the two hemispheres in the characteristic feature of the elliptical form of the higher isoclinal lines is the more important to notice, on account of the particular relation which appears to subsist in the northern hemisphere, between the change in the geographical direction of the greater axis of the ellipse, and the secular changes of the inclination generally throughout the hemisphere. The present direction of the greater axis in the northern hemisphere is nearly N.N.W. and S.S.E., or that of a line passing through the two foci of maximum intensity. In the southern hemisphere the present direction of the greater axis differs little from E.S.E. and W.N.W.

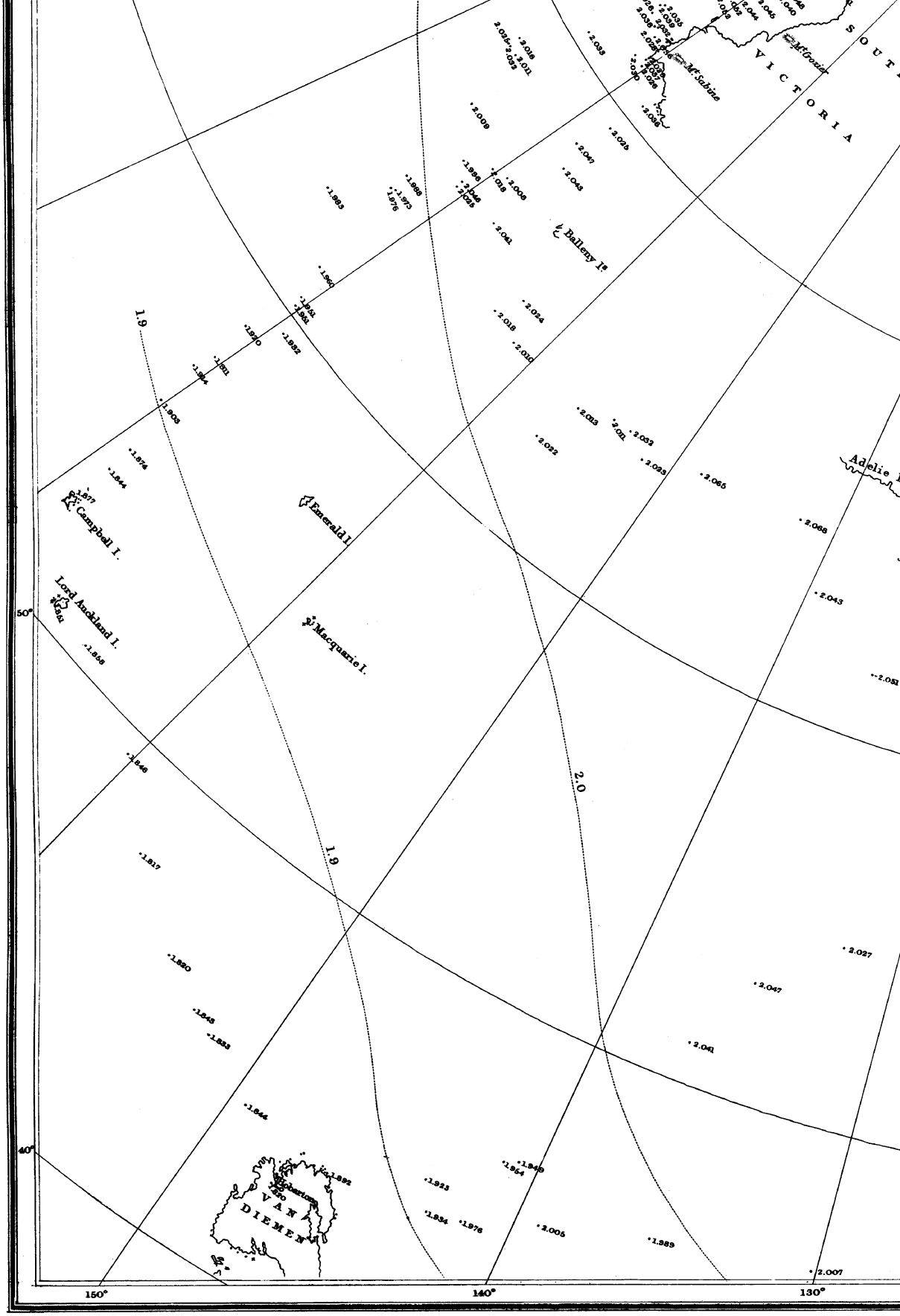
3. Captain Ross's observations of the intensity do not appear to indicate the existence anywhere in the southern hemisphere of a higher intensity than would be expressed by 2·1 of the arbitrary scale. In this respect also the analogy between the two hemispheres appears to be closer than is shown in M. Gauss's maps, Atlas, Pl. XVIII. With respect to the direction of so much of the line of highest intensity (2·0) as it has been possible to draw with any degree of confidence from the observations now communicated, it will be found to be in almost exact parallelism with the isodynamic line of 1·7 in Plate III. of my memoir "On the Variations of the Magnetic Intensity" in the Reports of the British Association for 1838; which line was the highest of which the position could be assigned, for any considerable distance, by the aid of the then existing determinations.

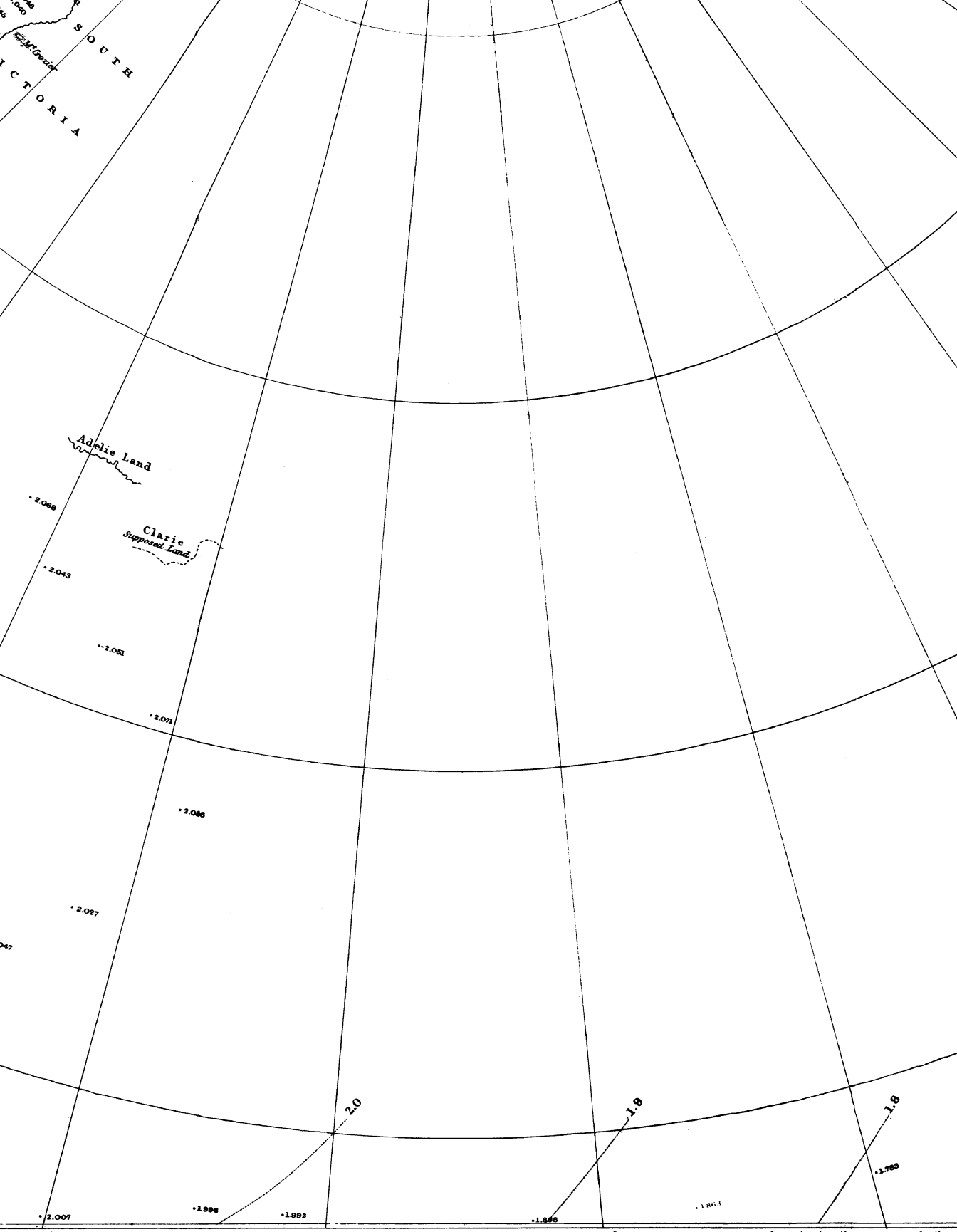

Observations of the
MAGNETIC DECLINATION
made in the Expedition commanded by
CAPT. JAMES CLARK ROSS R.N.
between
November 1840 and April 1841.
The observations of the Erebus are in Roman: thus - 96.10
The observations of the Terror are in Italic; thus -96.10
Perpendicular Barrier of Ice
Ross Mountains
Mt Terror 10.880 feet
Mt Erebus active Volcano 12.400 feet
SOUTH VICTORIA
Mt Sabine
Mt Gauss
Balleny Is
Adelie Land
Clarie Supposed Land
Emerald I.
Macquarie I.
Campbell I.
Lord Auckland Is
Snares
Stewart I.
NEW ZEALAND
VAN DIEMEN ISLANDS
Longitude East from Greenwich
South Latitude


60°
70°
80°
Perpendicular Barrier of Ice
Mt Terror
Mt Erebus
12,400
Mt Sabine
Mt Crozier
VICTORIA
SOUTH
Balleny Is.
Emerald I.
Macquarie I.
Campbell I.
Lord Auckland I.
Adelie
50°
2.0
1.9


180°
170°
160°
150°
140°
130°
120°
110°
100°
90°
80°
70°
60°
50°
40°
80°
80°
Perpendicular Barrier of Ice
Ross Mountains
Mt Terror 10,880 feet
Mt Erebus active Volcano 12,400 feet
Mt Gauss
SOUTH
VICTORIA
Adelie Land
Clarie
Supposed Land
2.035
2.029
2.036
2.037
2.040
2.033
2.031
2.041
2.045
2.040
2.068
2.043
2.051
2.071
2.056
2.027


40°
70°
60°
Observations of the
INTENSITY OF THE MAGNETIC FORCE
made in the expedition commanded by
CAPT. JAMES CLARK ROSS R.N.
between
July 1840, and April 1841.
50°
1.5
Kerguelen I.
1.465
1.6
1.539
1.574
1.601
1.575
1.7
South Latitude


VICTORIA
Mt Sabine
Mt Gould
Balleny Is
Emerald I.
Campbell I.
Lord Auckland I.
Macquarie I.
Adelie
VAN DIEMEN
1.9
2.0
50°
60°
150°
140°
130°

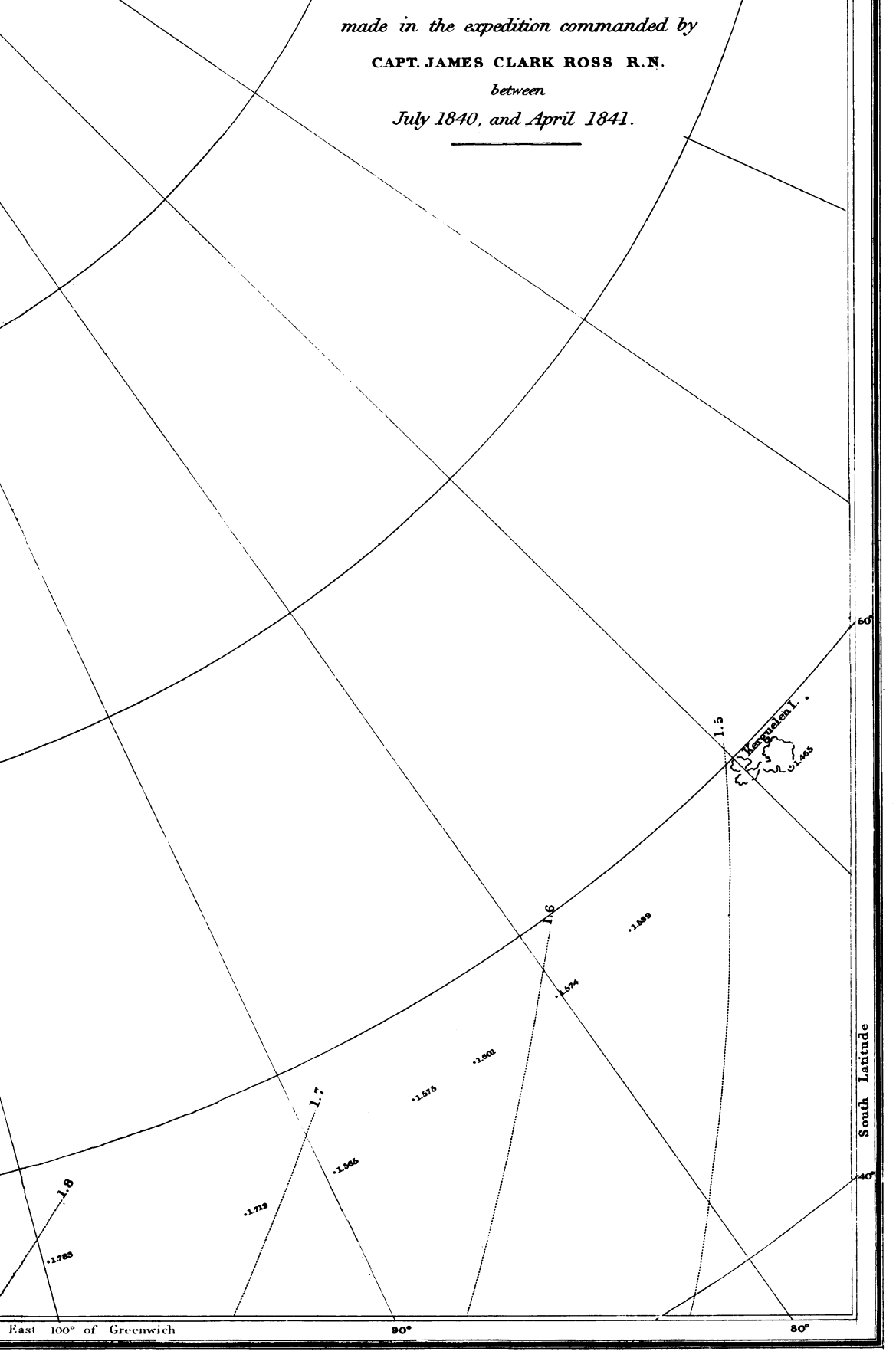

S O U T H
I C T O R I A
Mt Gravatt
Adelie Land
Clarie
Supposed Land
2.066
2.043
2.051
2.071
2.086
2.027
2.007
1.996
1.992
1.858
1.863
1.783
2.0
1.9
1.8
130°
120°
110°
Longitude East 100° of Gre

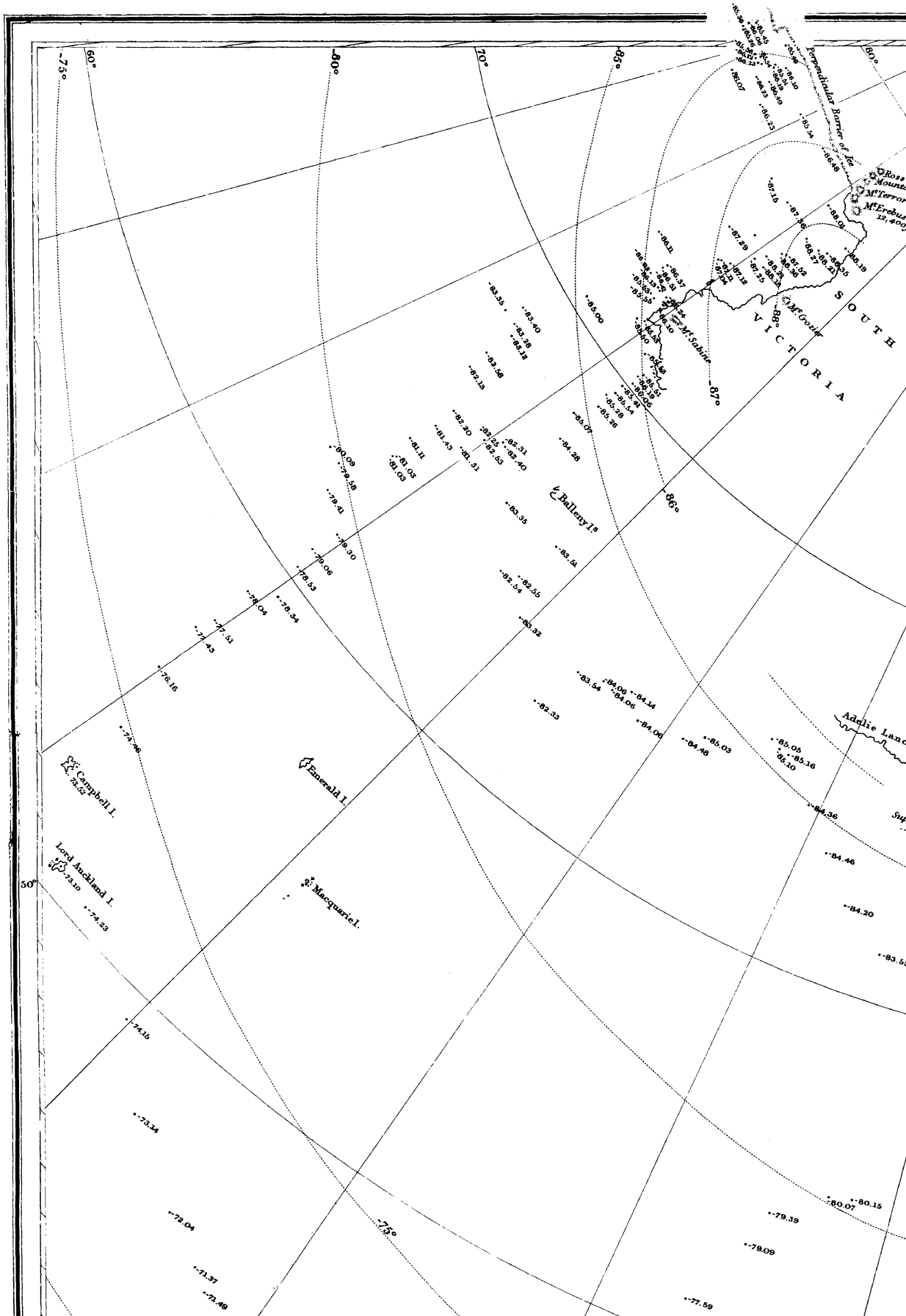
made in the expedition commanded by

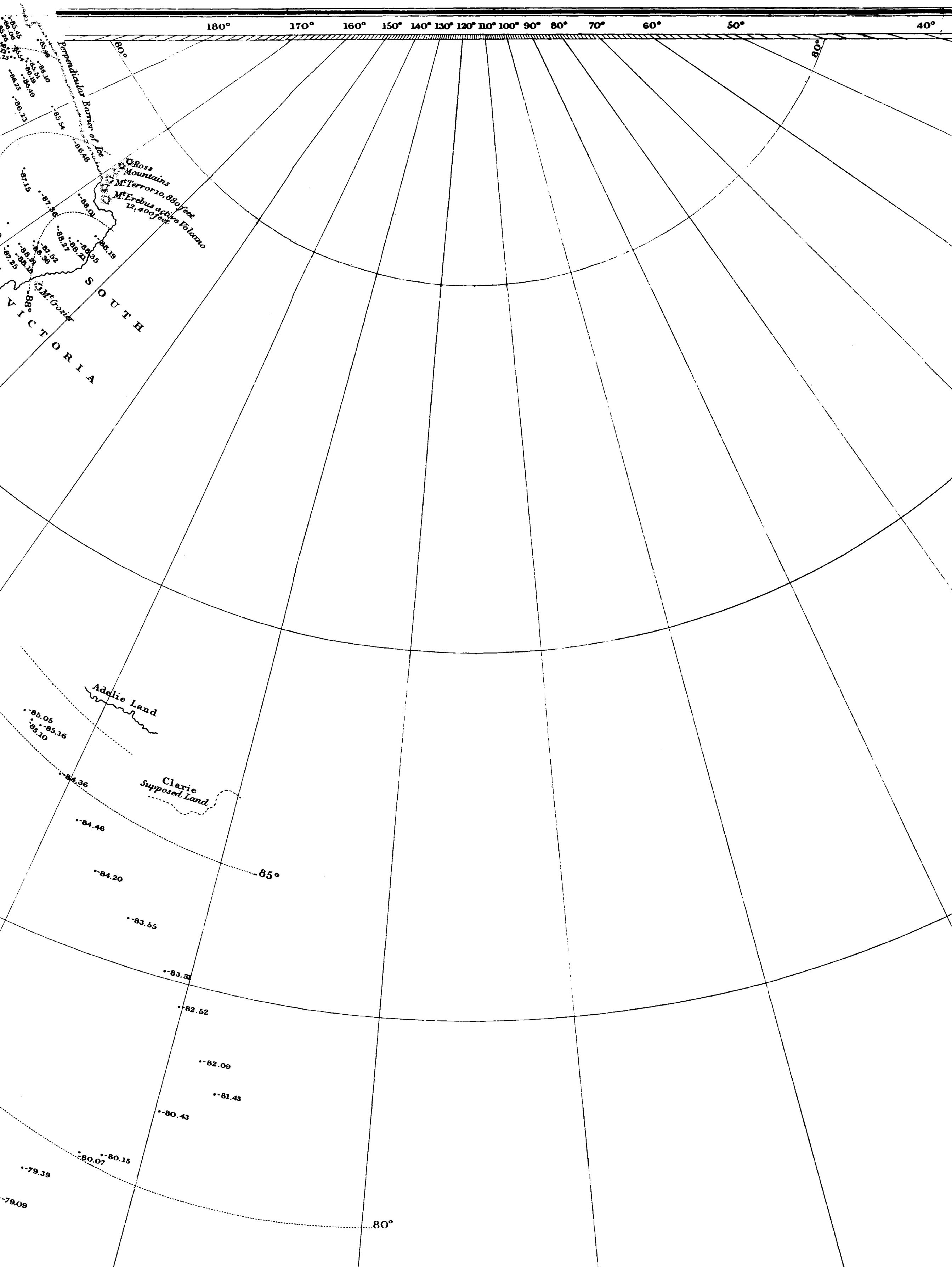
CAPT. JAMES CLARK ROSS R.N.

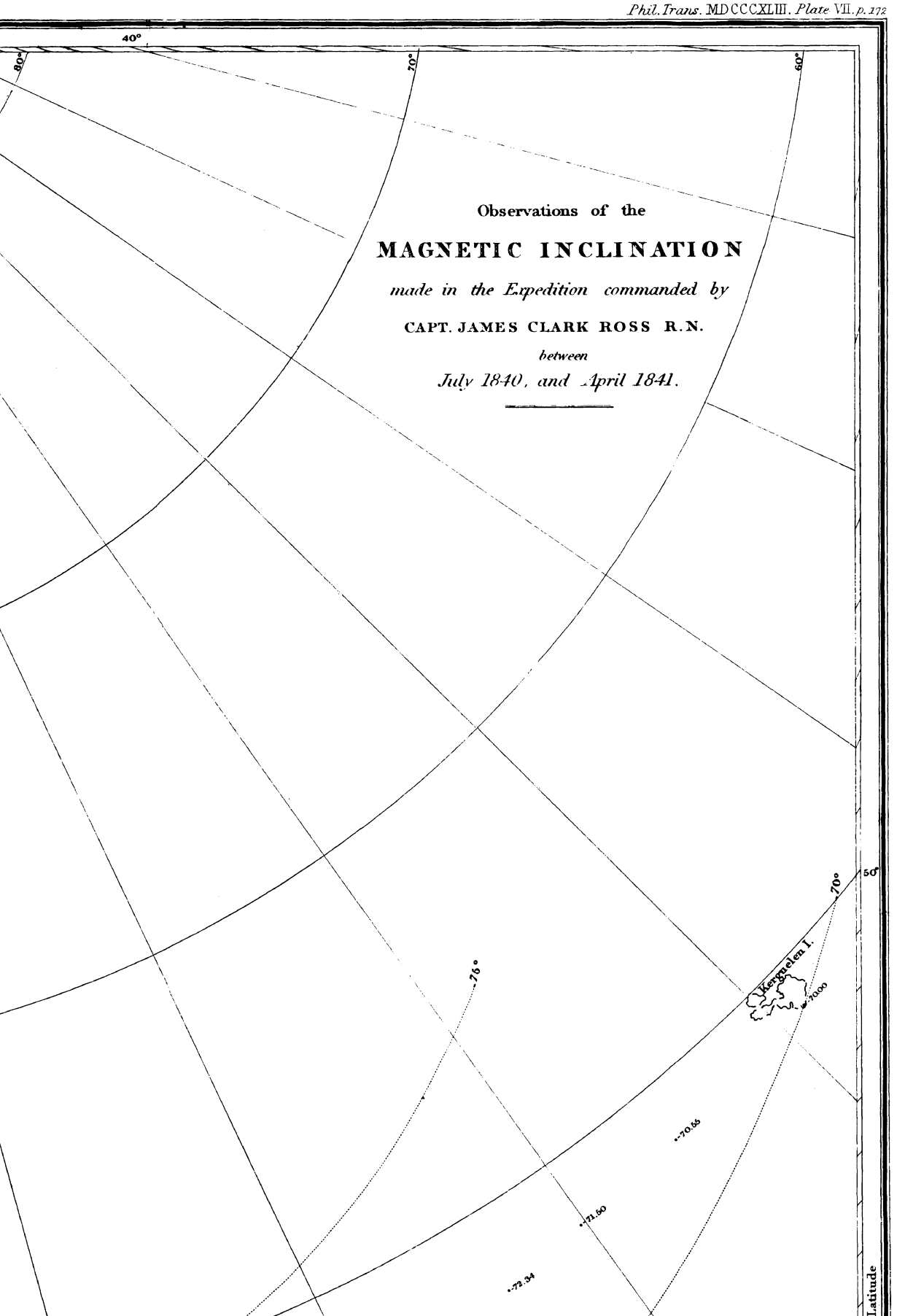
between

July 1840, and April 1841.




Perpendicular Barrier of Ice
Ross Mount
M.t Terror
M.t Erebus
12,400
M.t Sabine
M.t Crozier
VICTORIA
SOUTH
Balleny Is.
Emerald I.
Macquarie I.
Campbell I.
Lord Auckland I.
Adelie Land
60°
70°
75°
80°
85°
86°
87°
88°
50°


180°
170°
160°
150°
140°
130°
120°
110°
100°
90°
80°
70°
60°
50°
40°
80°
Perpendicular Barrier of Ice
Ross Mountains
Mt. Terror 10,880 feet
Mt. Erebus active Volcano 12,400 feet
Mt. Crozier
SOUTH
VICTORIA
Adelie Land
Clarie Supposed Land
85°
80°
85.05
85.16
85.10
84.36
84.46
84.20
83.55
83.31
82.52
82.09
81.43
80.43
80.07
80.15
79.39
79.09



Observations of the

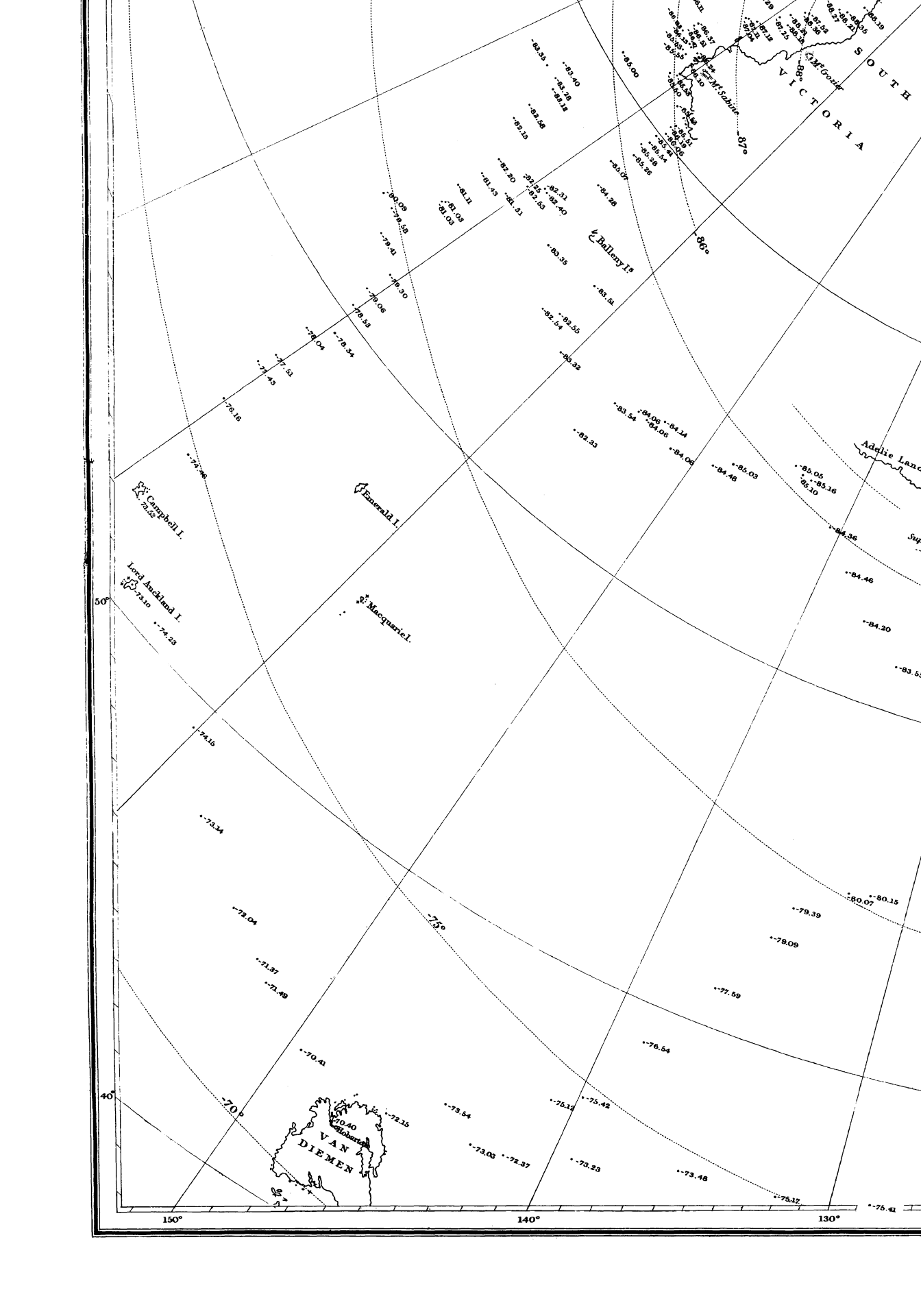
MAGNETIC INCLINATION

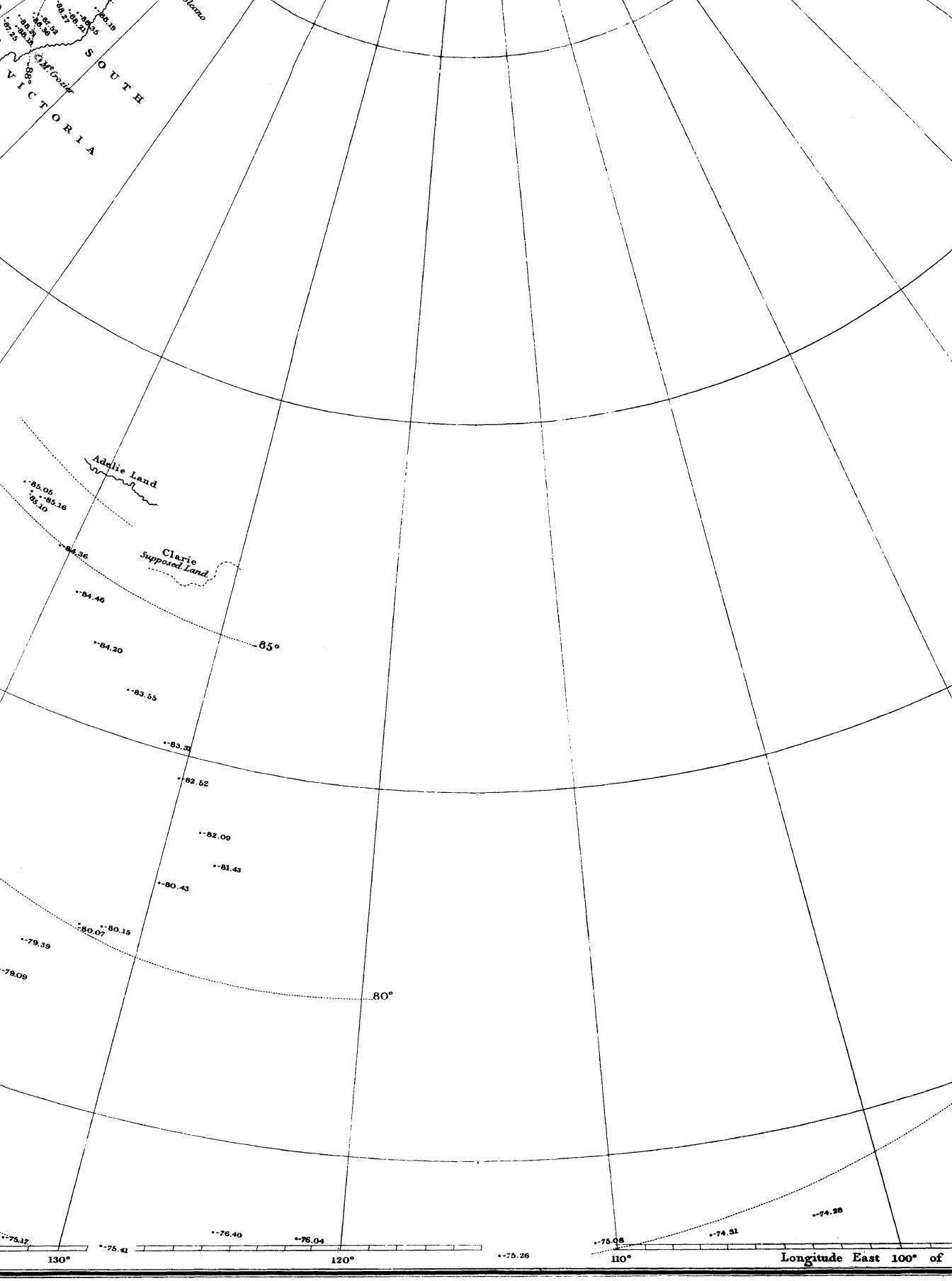
made in the Expedition commanded by

CAPT. JAMES CLARK ROSS R.N.

between

July 1840, and April 1841.


SOUTH
VICTORIA
Mt. Sabine
Mt. Crozier
Balleny Is.
Emerald I.
Campbell I.
Lord Auckland I.
Macquarie I.
Adelie Land
VAN DIEMEN
Robertson
86°
87°
88°
75°
70°
50°
40°
150°
140°
130°


Adelie Land
Clarie
Supposed Land
85°
80°
SOUTH
VICTORIA
Mt. Gouzy
-85.05
-85.16
-85.10
-84.36
-84.46
-84.20
-83.55
-83.33
-82.52
-82.09
-81.43
-80.43
-80.07
-80.15
-79.39
-79.09
-75.17
-75.42
-76.40
-76.04
-75.26
-75.08
-74.31
-74.26
130°
120°
110°
Longitude East 100° of

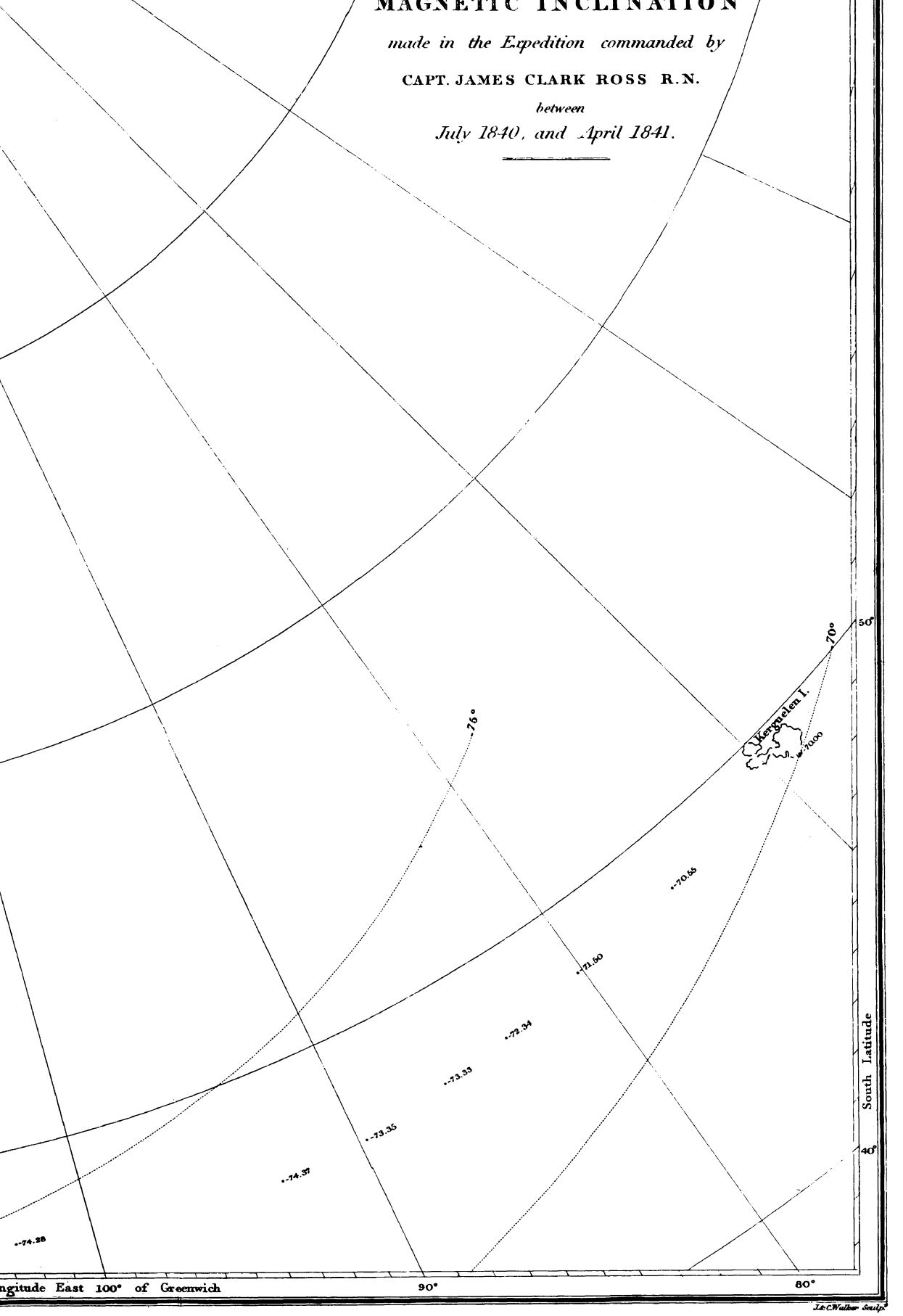
MAGNETIC INCLINATION

made in the Expedition commanded by

CAPT. JAMES CLARK ROSS R.N.

between

July 1840, and April 1841.



§ 9. *Observations of the Magnetic Inclination and Intensity made on board Her Majesty's ship Erebus on the passage from Kerguelen Island to Van Diemen Island in July and August* 1840.

These observations were made with Mr. Fox's apparatus, and with the same needle F which had been employed in the determinations made at sea on the passage from England to Kerguelen Island, discussed in § 5 and § 6 of these Contributions*. The inclinations at sea were observed with the face of the circle always to the east: the index correction for needle F in this position of the instrument has been derived by comparing similar observations made with it at the magnetic observatory at Kerguelen Island, with the results obtained at the same spot with other needles which had their poles reversed. These are contained in the following Table:—

Observations of the Inclication with needles whose poles were reversed, made at the Magnetic Observatory at Kerguelen Island, July 1840.

1840.	Hours.	Needle.	Poles. α direct. β reversed.	Mean.	Remarks.
	h m		° ′	° ′	
July 4.	10 A.M.	C 1	α −69 59·7 β −69 58·4	−69 59·0	Needles belonging to H. M. S. Terror. Observers, Captain Crozier, Lieut. Kay.
6.	6 P.M.	C 2	α −69 59·0 β −69 50·2	−69 54·6	
6.	6 15 P.M.	C 1	α −69 59·8 β −70 01·6	−70 00·7	
6.	6 30 P.M.	C 2	α −69 59·7 β −69 48·7	−69 54·2	
6.	7 20 P.M.	C 2	α −69 47·8 β −70 01·0	−69 54·4	
8.	1 45 P.M.	R 4	α −70 03·1 β −70 02·0	−70 02·5	Needles belonging to H. M. S. Erebus. Observer, Captain Ross.
9.	5 30 P.M.	R G 1	α −69 54·3 β −70 03·8	−69 59·1	
9.	7 30 P.M.	R G 2	α −69 57·7 β −70 04·0	−70 00·8	
10.	9 A.M.	R 10	α −70 13·9 β −70 08·9	−70 11·4	
				−69 59·6	General Mean.

The inclination observed with needle F at the same spot with the face of the circle towards the east was − 69° 57′·9; whence the index correction is − 1′·7.

The intensity of the magnetic force was determined in this portion of the voyage, on every day that the weather permitted, by the angles of deflection caused by a deflecting magnet. The observations were a continuation of the series of which the earlier portion is given in § 5 and § 6. The deflecting magnet employed was the deflector S. Tables are given, in the sections referred to, of the values of w' for this deflector corresponding to angles of deflection from 42° to 25°, derived from a comparison with the deflections produced by weights. The increase of the terrestrial force, in the passage between Kerguelen and Van Diemen Islands, brought the angle

* Philosophical Transactions, 1842, Art. II.

of deflection with deflector S down nearly to 20°. The weather was too unsettled to admit of any comparison being made with the weights at sea, and an accident which befel the needle on or before the arrival at Hobarton prevented the comparison which otherwise would have been made there. The values of w' corresponding to the angles of deflection from 25° to 20° have, therefore, been supplied, by continuing the rate of progression at which the deflecting force of the magnet S had been found by experiment, in angles from 36° to 25°, to increase as the angle diminished, viz. 0·033 gr. for each degree; we have thus the following values:—

$v' = 26°$;	$w' = 2{\cdot}594$ gr.
$v' = 25$;	$w' = 2{\cdot}628$
$v' = 24$;	$w' = 2{\cdot}661$
$v' = 23$;	$w' = 2{\cdot}694$
$v' = 22$;	$w' = 2{\cdot}727$
$v' = 21$;	$w' = 2{\cdot}760$
$v' = 20$;	$w' = 2{\cdot}793$.

At Kerguelen Island we have the angle of deflection with the magnet S = 26° 21′·3 = v; the equivalent weight = 2·58 = w; and (§ 6.) I = 1·465 (London = 1·372); whence in other localities

$$I' = I \frac{w' \sin v}{w \sin v'} = \cdot 2521\, w' \operatorname{cosec} v',$$

v' being furnished by the observation and w' taken from the preceding Table.

The last observation recorded to have been made with needle F was on the 11th of August, 1840, in lat. — 44° 16′, long. 142° 38′; when the angle of deflection being 21° 06′·5,

I′ = 1·929 uncorrected for the ship's attraction, or (the course being E. by N. ½ N.), I′ = 1·934 corrected.

On the return of the Expedition from the Antarctic Circle in the following year, the ships regained their former track, and on the 5th of April, 1841, Captain Ross repeated the observations with different instruments within a few miles of the spot on which he had observed on the 11th of August, 1840: these observations gave I′ = 1·927 in lat. — 45° 02′, long. 143° 10′. If we examine the map in which the intensity observations are inserted, we perceive that the direction of the two geographical positions in relation to each other is very nearly that of the isodynamic lines in that quarter; and if we refer generally to the Tables, we see that the difference in the resulting intensity on the two occasions is within the limits of the differences of partial determinations with the same instrument at one spot. As far as circumstances permit us to judge, therefore, we may view the observations of the two voyages as forming parts of one connected series.

As the ship's head during the run under consideration varied but little on any occasion from her direct course, and as that course is one on which the corrections, both of inclination and intensity, are small, I have taken them from the Table computed by means of the constants deduced in the preceding section.

Observations of the Inclination with Needle F on board H.M.S. Erebus, between July 22nd and August 11, 1840, on her passage from Christmas Harbour, Kerguelen Island, to Hobarton, Van Diemen Island.

1840.	Latitude.	Longitude.	Method employed.	Inclination. Face east.	Ship's head.	Corrections for ship's attraction.	Corrected inclination.	Remarks.
	° ′	° ′		° ′		′	° ′	
June 26.	Magnetic Observatory, Kerguelen Island.		Direct.	−70 02·8	Observed on shore.	.....	−69 59·6	Remark by Captain Ross. "From these observations the Index error of Needle F.(face east), as used on board ship, may be obtained."
			S.	−69 56·3				
	−48 41	68 54	S. and N.	−69 48·3				
			N.	−70 04·2				
July 22.	−48 29	76 55	Direct.	−70 34·5	S.E. by E.	−18	−70 55	
22.			S.	−70 36				
23.	−48 17	80 15	Direct.	−71 48	S.E. by E. ½ E.	−12	−71 50	
23.			S.	−71 34·4				
24.	−47 55	83 51	Direct.	−72 10	S.E. by E. ½ E.	−13	−72 34	
24.			S.	−72 29				
25.	−47 46	86 18	Direct.	−73 4·5	S.E. by E. ½ E.	−15	−73 33	
25.			S.	−73 28·5				
26.	−47 12	89 45	Direct.	−73 13	S.E. by E. ½ E.	−15	−73 35	Considerable swell.
26.			S.	−73 24·5				
27.	−47 03	93 0	Direct.	−74 11·3	S.E. by E. ½ E.	−16	−74 37	A high sea.
27.			S.	−74 27·5				
28.	−47 13	97 07	Direct.	−73 14·5	S.E. by E. ½ E.	.....	.....	Too much motion to continue.
30.	−47 39	102 42	Direct.	−74 15	E.S.E.	− 8	−74 28	
30.			S.	−74 22·5				
31.	−47 35	106 26	Direct.	−74 15·2	E.S.E.	− 8	−74 31	
31.			S.	−74 26·4				
Aug. 1.	−47 45	110 39	Direct.	−74 48	E.S.E.	− 9	−75 08	Much motion.
1.			S.	−75 6				
2.	−47 34	114 15	Direct.	−75 20·5	E. by S. ½ S.	− 1	−75 26	
2.			S.	−75 6				
4.	−47 41	121 30	Direct.	−76 9·8	E. by S.	+ 6	−76 04	Much motion.
4.			S.	−76 6·3				
5.	−47 34	124 43	Direct.	−76 49·2	E. ½ S.	+13	−76 40	Very unsteady.
5.			S.	−76 53·7				
6.	−46 44	128 26	Direct.	−76 1·6	E.	+21	−75 41	
6.			S.	−75 59				
7.	−46 13	132 0	Direct.	−75 43·7	E. ½ N.	+29	−75 17	
7.			S.	−75 45				
8.	−45 59	135 38	Direct.	−74 33·5	E. by N.	+36	−73 48	
8.			S.	−74 11				
9.	−45 17	139 19	Direct.	−74 17·5	E.N.E.	+48	−73 23	
9.			S.	−74 0·4				
10.	−44 24	141 39	Direct.	−73 39·15	N.E. by E.	+59	−72 37	
10.			S.	−73 33				
11.	−44 16	142 38	Direct.	−73 37·15	E. by N. ½ N.	+42	−73 03	
11.			S.	−73 49				

The index correction − 1′·7 has been applied in the final column.

Observations of the Magnetic Intensity with Needle F, on board H.M.S. Erebus, between July 22nd and August 11th, 1840, in her passage from Christmas Harbour, Kerguelen Island, to Hobarton, Van Diemen Island.

1840.	Latitude.	Longitude.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Corrections for ship's attraction.	Corrected intensity. London = 1·372.	Remarks.
June 26 and 28.	On shore at Kerguelen Island.		W. 1½ gr.	14° 48′·6	34·5	Observed on shore.	1·465	.....	1·465	At the Magnetic Observatory.
			W. 2 grs.	20 19·6	34·5					
	−48° 41′	68° 54′	S.	26 21·3	34·5					
July 22.	−48 29	76 55	S.	25 0·3	34	S.E. by E.	1·563	−·024	1·539	
23.	−48 17	80 15	S.	24 39·4	33	S.E. by E. ½ E.	1·594	−·020	1·574	
24.	−47 55	83 51	S.	24 20	39	S.E. by E. ½ E.	1·621	−·020	1·601	
25.	−47 46	86 18	S.	24 38·5	35	S.E. by E. ½ E.	1·595	−·020	1·575	
26.	−47 12	89 45	S.	24 46·5	34	S.E. by E. ½ E.	1·585	−·020	1·565	Considerable swell.
27.	−47 03	93 0	S.	23 04	44	S.E. by E. ½ E.	1·732	−·020	1·712	A high sea.
28.	−47 13	97 07	S.	23 04	44	S.E. by E. ½ E.	1·732	−·020	1·712	Much motion.
30.	−47 39	102 42	S.	21 37·5	43	E.S.E.	1·872	−·017	1·855	
31.	−47 35	106 26	S.	21 33·6	44	E.S.E.	1·880	−·017	1·863	
Aug. 1.	−47 45	110 39	S.	22 01·7	35	E.S.E.	1·832	−·017	1·815	Much motion.
2.	−47 34	114 15	S.	20 37	42	E. by S. ½ S.	1·984	−·014	1·970	
4.	−47 41	121 30	S.	20 27·7	40	E. by S.	2·002	−·010	1·992	Very unsteady.
5.	−47 34	124 43	S.	20 28·2	41	E. ½ S.	2·002	−·006	1·996	Very unsteady.
6.	−46 44	128 26	S.	20 10·5	42	E.	2·037	−·003	2·034	
7.	−46 13	132 0	S.	20 39·2	49	E. ½ N.	1·980	0	1·980	
8.	−45 59	135 38	S.	20 34·7	51	E. by N.	1·987	+·002	1·989	
9.	−45 17	139 19	S.	20 31·1	55	E.N.E.	1·997	+·008	2·005	
10.	−44 24	141 39	S.	20 48·7	50	N.E. by E.	1·962	+·014	1·976	
11.	−44 16	142 38	S.	21 06·5	48	E. by N. ½ N.	1·929	+·005	1·934	

Declinations observed on board Her Majesty's Ship Erebus between November 15, 1840, and April 6, 1841.

The Observers are distinguished in the column of Initials as follows:—R. Captain Ross; S. Lieut. Sibbald; W. Lieut. Wood; T. Mr. Tucker, Master; Sm. Mr. Smith, and O. Mr. Oakley, Mates; Y. Mr. Yule, Second Master. East Declination is characterised by the sign —.

1840.	Position. Lat.	Position. Long.	Initials.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Mean Declination.	Remarks.
	° ′	° ′		— ° ′			— ° ′	— ° ′		
Nov. 15. P.M.	—45 33	152 49	R.	— 8 55	E.S.E.		— 4 39	—13 34		
	—45 33	152 49	T.	— 8 37	E.S.E.		— 4 39	—13 16		
	—45 33	152 49	R.	— 8 23	E.S.E.		— 4 39	—13 02		
	—45 33	152 49	T.	— 8 25	E.S.E.		— 4 39	—13 04		
	—45 38	152 55	Sm.	— 8 10	E.S.E.	—71 40	— 4 39	—12 49	—13 09	
	—45 38	152 55	R.	— 8 32	E.S.E.		— 4 39	—13 11		
	—45 38	152 55	R.	— 8 22	E.S.E.		— 4 39	—13 01		
	—45 40	153 02	R.	— 8 40	E.S.E.		— 4 39	—13 19		
16 A.M.	—46 05	154 11	T.	— 8 31	S.E. by E. ½ E.		— 4 34	—13 05		
	—46 05	154 11	Y.	— 8 39	S.E. by E. ½ E.		— 4 34	—13 13		
	—46 05	154 11	S.	— 8 56	S.E. by E.		— 4 23	—13 19		
	—46 09	154 14	S.	— 9 17	S.E. by E. ½ E.		— 4 34	—13 51		
	—46 09	154 14	Y.	— 9 23	S.E. by E. ½ E.	—72 04	— 4 34	—13 57	—13 38	
	—46 09	154 14	T.	— 9 40	S.E. by E. ½ E.		— 4 34	—14 14		
	—46 09	154 14	T.	— 8 31	S.E. by E. ½ E.		— 4 34	—13 05		
	—46 15	154 28	S.	— 9 50	S.E. by E. ½ E.		— 4 34	—14 24		
16 P.M.	—46 30	154 54	T.	—13 29	N.		0 00	—13 29		
	—46 30	154 54	S.	—14 55	N. by E.		— 0 46	—15 41		
	—46 30	154 54	T.	—12 57	N.N.E.		— 1 30	—14 27		
	—46 30	154 54	T.	— 8 05	S.E. by E. ½ E.	—72 04	— 4 34	—12 39	—13 58	
	—46 30	154 54	R.	— 9 12	S.E. by E. ½ E.		— 4 34	—13 46		
	—46 30	154 54	R.	— 9 15	S.E. by E. ½ E.		— 4 34	—13 49		
	—46 32	155 01	T.	— 9 19	S.E. by E. ½ E.		— 4 34	—13 53		
18 P.M.	—49 36	160 52	R.	—13 11	E.S.E.					
	—49 42	160 56	R.	—12 27	E.S.E.					
	—49 48	161 00	R.	—11 49	E.S.E.					
	—49 49	161 00	T.	—12 18	E.S.E.					
	—49 49	161 00	T.	—12 03	E.S.E.	—74 00	— 5 19	—17 16	—17 16	Declination observed on shore with the Magnetometers of the Observatory.
	—49 49	161 00	T.	—12 06	E.S.E.					
	—49 52	161 08	R.	—11 18	E.S.E.					
	—49 52	161 08	S.	—10 27	E.S.E.					
Dec. 5. A.M.	—50 32	166 12	....	—22 29	S.W.	.....	+ 4 05	—18 24		
	At anchor.		....	—22 26	S.W.	.....	+ 4 05	—18 21		
				—17 49						
				—17 44						
P.M.	Auckland Island.		R.	—17 45	Observed	.....	.....	.....	—17 44·1	
	—50 32	166 12		—17 42	on shore.					
				—17 43						
				—17 42						
	At anchor.			—16 44	S.		0 00	—16 44		
	At anchor.			—16 20	S.S.W.		+ 2 17	—14 03		
8 P.M.	At anchor.		T.	—20 26	N.N.W.		+ 1 39	—18 47		
	At anchor.		T.	—22 35	N.W.		+ 3 10	—19 25		
	At anchor.		T.	—20 17	N.N.W.		+ 1 39	—18 38		
	At anchor.		W.	—19 56	N.N.W. ½ W.		+ 2 03	—17 53		
	At anchor.		T.	—19 54	N.N.W.		+ 1 39	—18 15		
	At anchor.		T.	—15 38	N.N.E.		— 1 39	—17 17		
	At anchor.		T.	—15 46	N.E.		— 3 10	—18 56		
	At anchor.		T.	—13 36	E.N.E.		— 4 23	—17 59		
	At anchor.		T.	—12 52	E.	—73 15	— 5 05	—17 57	—17 53	Mean declination observed on board at anchor.

Observations of Declination. (Continued.)

1840.	Position. Lat.	Position. Long.	Initials.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Mean Declination.	Remarks.
	° ′	° ′		° ′			° ′	° ′		
Dec. 11. A.M.	Auckland Island.		T.	−22 06	W.N.W.	−73 15	+ 4 23	−17 43	−17 53	
	At anchor.		T.	−21 39	N.W. by W.		+ 3 50	−17 49		
			T.	−22 49	W.		+ 5 05	−17 44		
			T.	−23 19	W. by N.		+ 4 50	−18 29		
			T.	−23 01	W.		+ 5 05	−17 56		
			T.	−22 26	W. by N.		+ 4 50	−17 36		
			T.	−21 32	N.W. ½ N.		+ 2 48	−18 44		
12 A.M.	−50 33	166 24	R.	−12 33	S.E. by E.		− 4 46	−17 19		
	−50 33	166 24	S.	−12 15	S.E. by E. ½ E.		− 4 58	−17 13		
	−50 33	166 24	T.	−12 30	S.E. by E.		− 4 46	−17 16		
	−50 48	166 42	T.	−10 15	S.E. by E.	−73 30	− 4 46	−15 01	−16 03	
	−50 48	166 43	S.	−11 06	S.E. by E.		− 4 46	−15 52		
	−50 48	166 43	Y.	− 9 46	S.E. by E.		− 4 46	−14 32		
13 A.M.	−52 14	166 43	S.	−10 37	S.E. ½ E.		− 4 28	−15 05		
16 P.M.	−52 33	169 09	R.	−22 19	S.W. ½ W.		+ 4 32	−17 47		
	Campbell Island, at anchor.		R.	−23 14	W.S.W.	−73 52	+ 5 17	−17 57	−17 52	
18 A.M.	−54 12	169 06	R.	−15 53	S.S.E.		− 2 29	−18 22		
	−54 12	169 06	S.	−15 41	S.S.E.		− 2 29	−18 10		
	−54 13	169 06	R.	−15 21	S.S.E. ½ E.	−74 46	− 3 00	−18 21	−18 44	
	−54 16	169 06	T.	−17 31	S.S.E.		− 2 29	−20 00		
	−54 16	169 07	S.	−15 42	S.S.E.		− 2 29	−18 11		
19 A.M.	−55 22	169 38	S.	−18 47	S. ½ W.	−75 30	+ 0 40	−18 07		
21 A.M.	−57 25	170 21	SM.	−20 40	S.S.E.		− 3 01	−23 41		
	−57 25	170 21	T.	−19 39	S.S.E.		− 3 01	−22 40		
	−57 27	170 21	Y.	−20 43	S.S.E.		− 3 01	−23 44	−21 58	
	−57 27	170 21	T.	−18 18	S.S.E.		− 3 01	−21 19		
	−57 31	170 21	SM.	−20 43	S.S.E.		− 3 01	−23 44		
	−57 35	170 21	S.	−17 09	S.S.E.		− 3 01	−20 10		
	−57 35	170 21	O.	−19 06	S. ½ E.	−77 00	− 0 44	−19 50		
	−57 36	170 21	T.	−20 00	S. by E. ½ E.		− 2 15	−22 15		
	−57 38	170 27	R.	−21 54	S.		0 00	−21 54		
	−57 38	170 27	S.	−17 43	S.S.E.		− 3 01	−20 44	−21 59	
	−57 40	170 28	R.	−24 54	S. ½ E.		− 0 44	−25 38		
	−57 45	170 28	S.	−23 29	S. by W. ½ W.		+ 2 15	−21 14		
	−57 45	170 28	O.	−24 32	S. by W. ½ W.		+ 2 15	−22 17		
22 A.M.	−59 00	170 55	T.	−19 34	S.S.E.	−78 04	− 3 12	−22 46		
	−59 01	170 51	T.	−19 08	S.E. by S.		− 4 29	−23 37		
23 A.M.	−59 36	170 08	T.	−23 25	S. by W. ½ W.		+ 2 30	−20 55		
	−59 45	170 02	Y.	−21 54	S. ¾ W.		+ 1 15	−20 39		
	−59 47	170 02	Y.	−21 12	S. by W.		+ 1 40	−19 32	−21 28	
23 P.M.	−59 42	169 16	R.	−17 57	S.E. by S.	−78 33	− 4 39	−22 36		
	−59 43	169 17	T.	−17 19	S.S.E.		− 3 18	−20 37		
	−49 45	169 19	T.	−15 01	S.E. ¼ E.		− 6 03	−21 04		
24 A.M.	−60 10	170 24	SM.	−20 07	S.S.E		− 3 21	−23 28		
	−60 10	170 24	T.	−20 17	S. by E.		− 1 43	−22 00		
	−60 10	170 24	T.	−21 33	S.		0 00	−21 33		
	−60 10	170 24	T.	−21 38	S. ¼ W.		+ 0 25	−21 13		
	−60 12	170 24	Y.	−20 01	S.E.		− 6 03	−26 04		
	−60 12	170 24	S.	−18 03	S. by E. ½ E.	−78 53	− 2 30	−20 33	−22 49	
	−60 12	170 24	O.	−20 21	S.S.E.		− 3 21	−23 42		
	−60 12	170 24	T.	−21 27	S. by E.		− 1 43	−23 10		
	−60 18	170 27	R.	−20 13	S.S.E.		− 3 21	−23 34		
	−60 20	170 27	R.	−19 31	S.S.E.		− 3 21	−22 52		

Observations of Declination. (Continued.)

1840.	Position. Lat.	Position. Long.	Initials.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Mean Declination.	Remarks.
	° ′	° ′		° ′			° ′	° ′	° ′	
Dec. 24 P.M.	−60 42	170 55	R.	−16 49	S.E.		− 6 06	−22 55		
	−60 42	170 55	R.	−18 03	S.E. by S.		− 4 52	−22 55		
	−60 46	170 55	R.	−18 06	S.E. by S.		− 4 52	−22 58		
	−60 46	170 55	R.	−18 23	S.E. by S.		− 4 52	−23 15		
	−60 46	170 55	S.	−19 37	S. by E. ½ E.		− 2 40	−22 17		
	−60 46	170 55	T.	−18 42	S.S.E.	−79 06	− 3 25	−22 07	−22 32	
	−60 48	170 55	R.	−18 02	S.E. by S.		− 4 52	−22 54		
	−60 48	170 55	T.	−17 35	S.E. by S.		− 4 52	−22 27		
	−60 48	170 40	S.	−17 33	S.E. by S.		− 4 52	−22 25		
	−60 50	170 44	R.	−17 57	S.E. by S.		− 4 52	−22 49		
	−60 55	170 41	S.	−16 46	S.S.E. ½ E.		− 4 07	−20 53		
29 P.M.	−64 10	172 28	R.	−30 28	S.S.W.		+ 4 06	−26 22		
	−64 10	172 28	R.	−29 24	S.S.W.		+ 4 06	−25 18		
	−64 10	172 28	R.	−27 34	S. by W.		+ 2 06	−25 28		
	−64 12	172 29	SM.	−25 30	S. ½ W.	−81 03	+ 1 02	−24 28		
	−64 12	172 29	S.	−25 32	S. ½ W.		+ 1 02	−24 30	−25 33	
	−64 12	172 29	S.	−23 32	S.E.		− 7 24	−30 56		
30 A.M.	−64 27	172 36	S.	−30 04	S.W. ½ S.		+ 6 44	−23 20		
	−64 27	172 36	S.	−31 18	S.W. ½ S.	−81 11	+ 6 44	−24 34		
	−64 27	172 36	T.	−32 36	S.W.		+ 7 30	−25 06		
	−64 37	172 40	Y.	−31 01	S.W. ½ W.		+ 8 04	−22 57		
	−64 37	172 40	SM.	−31 54	S.S.W.		+ 4 11	−27 43		
	−64 37	172 40	R.	−23 26	S.		0 00	−23 26		
	−64 37	172 40	T.	−24 08	S.		0 00	−24 08		
	−64 37	172 40	S.	−26 01	S.	−81 16	0 00	−26 01	−25 57	
30 P.M.	−64 44	172 50	R.	−25 03	S.S.E.		− 4 11	−29 14		
	−64 46	172 50	R.	−23 04	S.S.E.		− 4 11	−27 15		
	−64 48	172 50	R.	−22 43	S.S.E.		− 4 11	−26 54		
31 A.M.	−65 22	172 25	S.	−22 13	S.S.E.		− 4 25	−26 38		
	−65 22	172 25	O.	−19 39	S.S.E. ½ E.		− 5 24	−25 03		
	−65 23	172 21	S.	−22 06	S. by E. ½ E.		− 3 20	−25 26		
	−65 25	172 21	O.	−21 33	S. by E.		− 2 15	−23 48		
	−65 25	172 21	S.	−22 15	S. by E.	−81 45	− 2 15	−24 30	−25 06	
	−65 30	172 16	T.	−22 36	S. by E.		− 2 15	−24 51		
	−65 30	172 16	T.	−23 00	S. ½ E.		− 1 05	−24 05		
	−65 31	172 16	Y.	−27 33	S. ½ W.		+ 1 05	−26 28		
	−65 31	172 16	S.	−22 33	S.		0 00	−22 33		
	−65 32	172 14	T.	−24 02	S.		0 00	−24 02		
31 P.M.	−66 04	171 34	T.	−29 03	S.		0 00	−29 03		
	−66 07	171 34	SM.	−29 23	S. ½ W.		+ 1 13	−28 10	−27 11	
	−66 07	171 34	S.	−30 05	S. ½ W.		+ 1 13	−28 52		
	−66 07	171 34	T.	−30 38	S. ½ W.		+ 1 13	−29 25		
	−66 09	171 32	R.	−30 39	S. by W.	−82 30	+ 2 30	−28 09		
1841.										
Jan. 1 A.M.	−66 09	171 32	W.	−35 45	N.W. by W.		+ 9 18	−26 27		
1 P.M.	−66 20	170 32	S.	−32 20	S.S.W.		+ 4 50	−27 30		
	−66 28	170 48	R.	−32 44	S.S.W.		+ 4 50	−27 54		
2 A.M.	−66 20	169 13	T.	−20 18	S.E.		− 8 47	−29 05		
	−66 20	169 13	T.	−17 35	E.S.E.		−11 11	−28 46	−28 21	
	−66 20	169 13	SM.	−22 21	S.E.		− 8 47	−31 08		
	−66 20	169 13	T.	−18 44	S.E. by E.		−10 11	−28 55		
	−66 20	169 13	Y.	−17 53	S.E. by E.		−10 11	−28 04		
	−66 20	169 41	S.	−17 08	S.E. by E.		−10 11	−27 19		
	−66 20	169 41	T.	−17 01	E.S.E.		−11 11	−28 12		
	−66 20	169 43	R.	−16 33	E.S.E.		−11 11	−27 44		
	−66 24	169 44	R.	−17 52	E.S.E.	−82 30	−11 11	−29 03	−27 21	

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Initials.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Mean Declination.	Remarks.
Jan. 2 A.M.	−66° 30′	169° 44′	T.	−35° 14′	W.N.W. ½ W.	−82° 30′	+10° 55′	−24° 19′	−27° 21′	
	−66 30	169 44	W.	−35 45	N.W. by W.		+ 9 18	−26 27		
	−66 30	169 46	R.	−35 31	N.W. by W.		+ 9 18	−26 13		
	−66 30	169 46	S.	−34 28	N.N W. ½ W.		+ 5 11	−29 17		
	−66 29	169 48	O.	−31 46	N.N.W.		+ 4 11	−27 35		
4 A.M.	−65 28	171 47	S.	−20 09	S.E. by S.		− 6 35	−26 44		
	−65 28	171 47	O.	−18 33	S.E.		− 8 15	−26 48		
	−65 28	171 47	W.	−19 43	S.E. by E.		− 9 33	−29 16		
	−65 28	171 47	T.	−17 46	E. by S. ¾ S.		−10 38	−28 24		
	−65 28	171 47	T.	−17 28	E. by S. ¾ S.		−10 38	−28 06		
	−65 28	171 56	W.	−16 43	E. by S. ½ S.	−82 0	−10 45	−27 28	−27 34	
4 P.M.	−65 26	172 50	R.	−15 21	S. 79° E.		−11 00	−26 21		
	−65 26	172 50	R.	−15 44	S. 74° E.		−10 45	−26 29		
	−65 26	173 06	T.	−16 14	E. by S.		−11 00	−27 14		
	−65 26	173 06	T.	−17 00	E.S.E.		−10 30	−27 30		
	−65 27	173 32	R.	−18 22	S. 67° E.		−10 30	−28 52		
	−65 27	173 32	W.	−14 08	E.S.E.		−10 12	−24 20		
	−65 27	173 32	R.	−17 26	S. 72° E.		−10 17	−27 43		
	−65 27	173 32	R.	−18 59	S. 63° E.		− 9 45	−28 44		
	−65 27	173 32	SM.	−18 35	E.S.E.		−10 12	−28 47		
	−65 27	173 32	T.	−17 55	E.S.E.		−10 12	−28 07		
	−65 29	173 55	R.	−18 08	S. 68° E.	−81 45	−10 12	−28 20	−28 08	
	−65 30	173 55	R.	−19 42	S.E. by E. ½ E.		− 9 45	−29 27		
	−65 40	173 55	Y.	−19 16	S.E. ½ E.		− 8 38	−27 54		
	−65 32	173 55	T.	−23 49	S. by E. ½ E.		− 3 21	−27 10		
	−65 34	173 55	R.	−22 48	S.E.		− 7 56	−30 44		
5 A.M.	−66 39	174 14	Y.	−29 46	S.E. by S.		− 7 04	−36 50		
	−66 39	174 14	SM.	−21 41	S.E.	−82 30	− 8 47	−30 28		
5 P.M.	−67 12	174 41	R.	−28 05	S.S.E.		− 5 11	−33 16		
	−67 12	174 42	T.	−29 49	S. by E.		− 2 42	−32 31		
	−67 12	174 42	Y.	−30 10	S. ¾ E.		− 2 01	−32 11		
	−67 12	174 42	Y.	−27 59	S.S.E. ½ E.		− 6 25	−34 24		
	−67 23	174 42	R.	−18 03	E.S.E.		−11 57	−30 00		
	−67 23	174 42	T.	−17 25	E.S.E.		−11 57	−29 22		
	−67 23	174 42	T.	−18 05	S.E. by E.		−10 53	−28 58	−31 29	
	−67 23	174 42	T.	−17 13	E.S.E.	−83 00	−11 57	−29 10		
	−67 23	174 42	R.	−18 07	E.S.E.		−11 57	−30 04		
	−67 27	174 42	R.	−18 44	E.S.E.		−11 57	−30 41		
	−67 28	174 51	R.	−21 06	S.E.		− 9 23	−30 29		
	−67 28	174 51	T.	−26 53	S.S.E.		− 5 11	−32 04		
	−67 29	174 51	R.	−29 42	S. ¾ E.		− 2 01	−31 43		
	−67 30	174 51	R.	−26 31	S.S.E.		− 5 11	−31 42		
6 A.M.	−67 50	175 00	O.	−29 01	S.S.E.		− 5 33	−34 34		
	−67 50	175 00	S.	−29 09	S.S.E.		− 5 33	−34 42		
	−67 52	175 01	S.	−31 48	S.S.E.		− 5 33	−37 21		
	−67 52	175 01	O.	−27 53	S.S.E.		− 5 33	−33 26		
	−68 00	175 00	T.	−26 11	S.S.E. ½ E.		− 6 46	−32 57		
	−68 00	175 00	Y.	−27 00	S.S.E.		− 5 33	−32 33		
	−68 00	175 00	S.	−27 01	S.S.E.	−83 30	− 5 33	−32 34	−34 04	
	−68 00	175 00	T.	−27 42	S.S.E.		− 5 33	−33 15		
	−68 05	175 10	W.	−26 58	S.S.E. ½ E.		− 6 46	−33 44		
	−68 05	175 10	T.	−28 18	S.S.E.		− 5 33	−33 51		
	−68 05	175 14	R.	−29 51	S.S.E.		− 5 33	−35 24		
	−68 05	175 14	R.	−43 7	N.W.		+ 9 09	−34 38		
	−68 12	175 14	R.	−24 56	S.E. ½ S.		− 9 02	−33 58		

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Initials.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Mean Declination.	Remarks.
	° ′	° ′		° ′			° ′	° ′	° ′	
Jan. 7 P.M.	−68 32	175 49	T.	−46 02	W. ¾ N.		+13 25	−32 37		
	−68 32	175 49	T.	−47 05	W. by S. ½ S.		+13 20	−33 45		
	−68 32	175 49	W.	−46 07	W. by S.		+13 39	−32 28		
	−68 32	175 49	Sm.	−24 06	S.E. ½ E.		−11 02	−35 08		
	−68 32	175 49	T.	−46 57	W. by S.		+13 39	−33 18		
	−68 32	175 49	R.	−25 49	S.E. ½ S.		− 9 12	−35 01		
	−68 32	175 49	R.	−47 29	W. by S. ½ S.	−83 35	+13 20	−34 09	−33 52	
	−68 32	175 55	T.	−30 21	S. by E. ¾ E.		− 5 30	−35 51		
8 A.M.	−68 30	176 35	T.	−20 22	S.E. by E. ¾ E.		−12 44	−33 06		
	−68 30	176 35	S.	−20 51	E. ¾ N.		−13 25	−34 16		
	−68 30	176 35	T.	−20 22	E. by S. ¾ S.		−13 10	−33 32		
	−68 30	176 35	Y.	−19 58	E. by S. ½ S.		−13 20	−33 18		
8 P.M.	−68 28	176 32	R.	−34 39·1	.....	.....	.....	.....	−34 39·1	Observed on ice.
9 A.M.	−68 55	176 24	S.	−29 26	S.S.E.		− 5 45	−35 11		
	−68 55	176 24	Y.	−29 38	S.S.E.		− 5 45	−35 23		
	−68 55	176 24	O.	−28 49	S.S.E.	−83 45	− 5 45	−34 34	−34 58	
	−68 55	176 18	T.	−29 09	S.S.E.		− 5 45	−34 54		
	−68 55	176 18	W.	−29 04	S.S.E.		− 5 45	−34 49		
10 P.M.	−70 31	173 17	R.	−41 12	S.		0 00	−41 12		
	−70 32	172 56	R.	−47 04	S. 27° W.		+ 8 34	−38 30		
	−70 34	172 53	R.	−47 35	S. 25° W.	−85 02*	+ 8 00	−39 35	−39 35	
	−70 34	172 53	S.	−49 34	S.S.W. ½ W.		+ 8 43	−40 51		
	−70 34	172 52	R.	−59 05	W.		+17 50	−41 12		
	−70 34	172 52	R.	−49 12	S.W.		+13 03	−36 09		
11 A.M.	−70 52	172 25	T.	−44 19	S.		0 00	−44 19		
	−70 52	172 25	Y.	−44 35	S.		0 00	−44 35		
	−70 55	172 27	Sm.	−45 31	S.		0 00	−45 31		
	−71 02	172 27	T.	−43 11	S.		0·00	−43 11		
	−71 02	172 27	Sm.	−43 48	S.	−85 50	0 00	−43 28	−43 56	
	−71 02	172 27	T.	−46 48	S. ½ W.		+ 2 08	−44 40		
	−71 02	172 27	S.	−43 43	S.		0 0	−43 43		
	−71 02	172 27	O.	−44 36	S. ½ W.		+ 2 08	−42 28		
	−71 12	172 15	R.	−43 29	S.		0 0	−43 29		
11 P.M.	−71 21	170 52	R.	−48 45	S. by W.		+ 4 20	−44 25		
	−71 21	170 52	T.	−50 10	S. by W. ½ W.		+ 6 28	−43 42		
	−71 21	170 52	W.	−47 35	S. by W. ½ W.		+ 6 28	−41 07		
	−71 21	170 52	Y.	−51 03	S. by W. ½ W.		+ 6 28	−44 35		
	−71 22	170 56	T.	−51 09	S. by W. ½ W.		+ 6 28	−44 41		
	−71 22	170 56	S.	−47 45	S. by W.	−85 53	+ 4 20	−43 25	−44 01	
	−71 22	170 56	O.	−49 33	S. by W. ½ W.		+ 6 28	−43 05		
	−71 24	170 56	T.	−51 42	S. by W. ½ W.		+ 6 28	−45 14		
	−71 24	170 56	S.	−59 57	S.W.		+15 50	−44 07		
	−71 19	171 06	T.	−28 17	N.E. by E.		−17 36	−45 53		
12 P.M.	−71 52	171 11	S.	−27 44	N.E. ½ N.		−13 38	−41 22		
	−71 52	171 11	W.	−30 36	N.E. ½ N.		−13 38	−44 14		
13 P.M.	−72 07	172 18	S.	−27 40	E. by N. ½ N.		−21 06	−48 46		
15 A.M.	−71 46	171 57	O.	−49 22	S. by W. ½ W.		+ 6 40	−42 42		
	−71 46	171 57	S.	−48 22	S. by W. ½ W.	−86 00	+ 6 40	−41 42	−44 24	
	−71 46	171 55	T.	−51 34	S. by W. ½ W.		+ 6 40	−44 54		
	−71 46	171 55	S.	−51 24	S.S.W.		+ 8 52	−42 32		
	−71 54	172 17	T.	−24 13	E. by S.		−22 11	−46 24		
	−71 54	172 17	R.	−24 51	E. by S.		−22 11	−47 02		
	−71 54	172 17	T.	−25 00	E. by S.		−22 11	−47 11		
	−71 54	172 17	W.	−23 32	E. by S. ½ S.		−21 36	−45 08		
	−71 55	172 17	R.	−24 15	E. ½ S.	−86 00	−22 19	−46 34	−48 12	

* ψ' at West $= -59° 05'$
ψ' at South $= -41\ 12$
} Diff. 17° 53′ = ship's attraction at West:

$$\frac{\sin 17° 53'}{a} = \tan\theta; \quad \frac{\sin 17° 53'}{\cdot 0267} = 1\cdot 150 = \tan 85° 02'.$$

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Initials.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Mean Declination.	Remarks.
Jan. 15 P.M.	−71° 53′	172° 01′	S.	−29° 28′	E. ½ S.	−86° 00′	−22° 19′	−51° 47′	−48° 12′	
	−71 53	172 01	O.	−27 43	E. ¾ N.		−22 00	−49 43		
	−71 53	172 01	T.	−25 33	E. ½ N.		−22 08	−47 41		
	−71 53	172 01	W.	−26 08	E.		−22 27	−48 35		
	−71 58	171 36	R.	−59 31	S.S.W. ½ W.		+10 50	−48 41		
	−72 00	171 32	R.	−26 05	E. ½ S.		−22 19	−48 24		
17 P.M.	−72 14	174 00	W.	−33 28	S.E. by E.		−19 02	−52 30		
	−72 15	174 02	T.	−31 37	S.E. ¾ E.		−18 20	−49 57		
	−72 16	174 10	T.	−32 41	S.E. ½ E.		−17 40	−50 21		
	−72 17	174 14	T.	−35 05	S.E. ½ E.	−86 00	−17 40	−52 45	−51 41	
	−72 17	174 14	S.	−35 58	S.E. ½ E.		−17 40	−53 38		
	−72 17	174 14	O.	−33 15	S.E. ½ E.		−17 40	−50 55		
18 P.M.	−73 00	176 14	R.	−35 12	E.S.E.		−22 02	−57 14		
	−73 02	176 10	T.	−65 04	S.W. by S.		+13 23	−51 41		
	−73 02	176 10	R.	−64 35	S.W. by S.		+13 23	−51 12		
	−73 02	176 10	S.	−65 52	S.W. by S.		+13 23	−52 29		
	−73 02	176 10	O.	−65 50	S.S.W. ½ W.		+11 18	−54 32		
	−73 02	176 03	R.	−65 54	S.W. by S.		+13 23	−52 31		
	−73 02	176 03	T.	−68 09	S.W. ½ S.	−86 10	+15 11	−52 58	−52 41	
	−73 02	175 57	R.	−65 02	S.S.W. ½ W.		+11 18	−53 44		
	−73 02	175 51	R.	−63 34	S.S.W. ½ W.		+11 18	−52 16		
	−73 01	175 38	R.	−63 37	S.W. by S.		+13 23	−50 14		
	−73 00	175 24	R.	−62 45	S.S.W. ½ W.		+11 18	−51 27		
	−72 59	175 11	R.	−64 15	S.S.W. ¾ W.		+12 22	−51 53		
19 A.M.	−72 36	173 40	T.	−66 21	S.W.		+16 15	−50 06		
	−72 36	173 40	W.	−66 12	S.W. ½ W.		+17 37	−48 35		
	−72 36	173 40	Y.	−64 49	S.W. by S.	−86 00	+12 49	−52 00	−50 31	
	−72 36	173 40	T.	−64 11	S.W. ¾ S.		+13 45	−50 26		
	−72 35	173 39	T.	−67 43	S.W.		+16 15	−51 28		
19 P.M.	−72 31	173 40	O.	−53 57	N. by W. ½ W.		+ 6 27	−47 30		
	−72 34	173 42	T.	−43 53	S. by E. ½ E.		− 6 55	−50 48		
	−72 34	173 42	T.	−44 43	S. by E. ½ E.		− 6 55	−51 38		
	−72 34	173 45	Y.	−41 10	S.S.E.		− 9 14	−50 24		
	−72 34	173 45	O.	−43 34	S.S.E.	−86 10	− 9 14	−52 48	−51 54	
	−72 34	173 45	R.	−43 43	S.S.E.		− 9 14	−52 57		
	−72 36	173 40	R.	−48 22	S. by E.		− 4 39	−53 01		
	−72 50	173 10	R.	−49 15	S. by E. ½ E.		− 6 55	−56 10		
21 A.M.	−74 10	169 28	S.	−34 25	E. ¾ S.		−28 37	−63 02		
	−74 10	169 28	O.	−31 47	E. ¼ S.		−28 53	−60 40		
22 A.M.	−73 53	170 57	S.	−88 12	W. by N. ½ N.		+27 11	−61 01		
	−73 53	170 57	S.	−78 56	N.N.W.		+10 28	−68 28		
	−73 53	170 57	S.	−35 43	E. by N.		−28 08	−63 51		
	−73 57	171 40	T.	−48 46	N.N.E. ¾ E.		−14 12	−62 58		
	−73 57	171 40	T.	−38 00	E. by N.	−86 50	−28 08	−66 08	−63 38	
	−73 57	171 40	T.	−36 56	E. ¾ N.		−28 22	−65 18		
	−73 54	171 55	Y.	−37 13	E. by S.		−28 29	−65 42		
	−73 54	171 55	T.	−35 59	E. by S. ½ S.		−27 41	−63 40		
	−73 54	172 00	O.	−31 25	E. by S. ½ S.		−27 41	−59 06		
	−73 55	172 04	O.	−36 52	E.S.E.		−26 53	−63 45		
22 P.M.	−73 58	172 16	S.	−61 29	S.		0 00	−61 29		
	−73 59	171 58	S.	−65 50	S. by W.		+ 5 39	−60 11		
	−73 59	171 58	T.	−67 45	S. ½ W.		+ 2 49	−64 56		
	−74 00	171 43	R.	−66 08	S. by W.		+ 5 39	−60 29		
	−74 00	171 43	R.	−69 22	S. by W.		+ 5 39	−63 43		
	−74 01	171 34	R.	−38 31	E. ½ S.	−86 50	−28 45	−67 16	−64 25	
	−74 04	171 27	R.	−40 04	E. by S. ½ S.		−27 41	−67 45		
	−74 04	171 27	T.	−36 00	E. ¾ S.		−28 37	−64 37		
	−74 04	171 27	W.	−38 52	E. ½ N.		−28 33	−67 25		
	−74 04	171 27	T.	−37 46	E. by S.		−28 29	−66 15		

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Initials.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Mean Declination.	Remarks.
	° ′	° ′		° ′		° ′	° ′	° ′	° ′	
Jan. 25 A.M.	−74 36	168 06	T.	− 78 32	S. by W. ½ W.		+ 9 21	− 69 11		
	−74 36	168 06	T.	− 77 36	S. by W. ½ W.		+ 9 21	− 68 15		
	−74 36	168 06	T.	− 37 17	S.E. by E. ¾ E.		−31 38	− 68 55		
	−74 40	169 38	T.	− 37 25	S.E. by E.	−87 20	−29 07	− 66 32	− 69 47	
	−74 41	169 42	Y.	− 39 15	E.S.E.		−32 28	− 71 43		
	−74 41	169 42	Sm.	− 39 54	S.E. by E. ½ E.		−30 45	− 70 39		
	−74 41	169 42	T.	− 43 14	S.E. by E. ¼ E.		−30 00	− 73 14		
25 P.M.	−74 45	169 32	R.	− 81 36	S.S.W.		+12 23	− 69 13		
	−74 45	169 32	R.	− 81 08	S.S.W.		+12 23	− 68 45		
	−74 47	168 51	R.	− 86 28	S.S.W. ½ W.		+15 13	− 71 15		
	−74 47	168 51	S.	− 87 19	S.S.W.		+12 23	− 74 56		
	−74 47	168 51	T.	− 85 35	S. by W. ½ W.	−87 10	+15 13	− 70 22	− 71 08	
	−74 44	168 22	R.	− 85 15	S.S.W.		+12 23	− 72 52		
	−74 44	168 22	R.	− 93 49	S.W. ½ W.		+25 10	− 68 39		
	−74 44	168 10	T.	− 91 01	S.W. by S.		+20 33	− 70 28		
	−74 40	168 08	R.	− 43 39	S.E. ½ E.		−25 10	− 68 49		
26 A.M.	−74 55	168 25	T.	− 94 09	S.W. by S.		+18 03	− 76 06		
27 A.M.	−75 44	168 50	S.	− 75 49	S.S.E.		−15 04	− 90 53		
	−75 44	168 50	T.	− 77 04	S.S.E.		−15 04	− 92 08		
	−75 44	168 50	S.	−100 55	S.S.W. ½ W.		+18 32	− 82 23		
	−75 36	168 23	R.	−100 26	S.S.W.		+15 04	− 85 22		
	−75 36	168 23	Y.	− 99 06	S.S.W.	−87 40	+15 04	− 84 02	− 84 58	
	−75 36	168 23	T.	− 45 19	E.S.E.		−37 42	− 83 01		
	−75 36	168 23	R.	− 46 18	S.E. by E. ½ E.		−35 40	− 81 58		
	−75 36	168 23	S.	− 47 55	S.E. by E. ½ E.		−35 40	− 83 35		
	−75 38	168 33	R.	− 47 41	S.E. by E.		−33 37	− 81 18		
29 A.M.	−77 37	175 43	Sm.	−104 19	N. ½ E.		− 2 48	−107 07		
	−77 40	175 59	T.	−105 44	N. ¼ W.		+ 1 24	−104 20		
	−77 40	175 59	T.	−114 11	N. by W. ½ W.		+ 8 20	−105 51		
	−77 43	176 00	T.	−118 53	N.N.W. ½ W.	−87 00	+13 38	−105 15	−104 25	
	−77 43	176 00	S.	−108 20	N. by W. ½ W.		+ 8 20	−100 00		
	−77 43	176 00	T.	−116 26	N. by W. ½ W.		+ 8 20	−108 06		
	−77 43	176 00	T.	−104 30	N. ¾ W.		+ 4 12	−100 18		
29 P.M.	−77 49	177 30	T.	− 90 54	S.E. by S.		−15 22	−106 16		
	−77 49	177 46	T.	−104 52	N. ¼ W.	−86 40	+ 1 15	−103 37	−105 21	
	−77 50	178 13	R.	−110 07	N. ½ W.		+ 2 30	−107 37		
	−77 51	178 33	R.	−100 10	N. ¾ E.		− 3 45	−103 55		
30 A.M.	−77 47	180 34	S.	−106 52	N.N.W. ½ W.	−86 20	+10 35	− 96 17	− 96 17	
31 A.M.	−77 37	186 41	S.	− 70 55	N.E. ½ N.		−13 39	− 84 34		
	−77 50	188 00	T.	− 60 57	N.E. by E. ¼ E.		−19 13	− 80 10		
	−77 50	188 00	T.	− 66 38	N E. by N.		−11 58	− 78 36		
	−77 50	188 00	Sm.	− 68 56	N.N.E.		− 8 10	− 77 06		
31 P.M.	−77 08	189 57	S.	− 72 35	N.N.E. ½ E.		−10 04	− 82 39		
	−77 08	189 57	R.	− 74 06	N.N.E. ½ E.		−10 04	− 84 10		
Feb. 1 A.M.	−77 11	189 01	Sm.	−103 58	S.W. by W. ½ W.	−86 00	+20 02	− 83 56	− 82 29	
	−77 11	189 01	T.	−102 56	S.W. by W.		+19 02	− 83 54		
	−77 11	189 00	T.	−103 52	W. by S. ½ S.		+21 36	− 82 16		
	−77 11	189 00	T.	− 90 06	N.N.W.		+ 8 10	− 81 56		
	−77 11	189 00	O.	− 70 58	S.E. by S.		−12 49	− 83 47		
	−77 08	189 05	S.	− 73 58	S.E. by S.		−12 49	− 86 47		
1 P.M.	−77 08	188 26	R.	− 85 52	S. by E.		− 4 17	− 90 09		
	−77 08	188 26	R.	− 84 25	S.S.E.		− 8 30	− 92 55		
	−77 09	188 24	R.	− 79 49	S.E. by S.		−12 18	− 92 07		
	−77 09	188 24	R.	− 66 58	E. ¼ S.	−85 50	−21 27	− 88 25	− 91 07	

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Initials.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Mean Declination.	Remarks.
Feb. 1 P.M.	−77° 09′	188° 24′	R.	− 70° 19′	E.S.E.	−85° 50′	−20° 13′	−90° 32′	−91° 07′	
	−77 09	188 24	R.	− 75 38	S.E.		−15 37	−91 15		
	−77 09	188 24	R.	− 82 22	S.S.E.		− 8 30	−90 52		
	−77 09	188 15	R.	− 79 56	S.E. by S.		−12 18	−92 14		
	−77 09	188 15	T.	− 79 14	S.E. by S.		−12 18	−91 32		
2 A.M.	−77 34	186 56	S.	− 72 39	E.S.E.		−22 02	−94 41		
	−77 34	186 03	O.	− 70 42	S.E. by E. ½ E.		−20 58	−91 40		
	−77 34	186 15	S.	− 69 05	E.		−23 36	−92 41		
	−77 34	186 15	O.	− 71 39	E.S.E.		−22 02	−93 41		
	−77 35	186 55	T.	− 72 32	S.E. by E. ¼ E.	−86 10	−20 27	−92 59	−93 22	
	−77 35	186 55	T.	− 73 09	S.E. by E. ½ E.		−20 58	−94 07		
	−77 35	186 55	T.	− 75 37	S.E.		−17 00	−92 37		
	−77 35	186 55	S.	− 76 49	S.E.		−17 00	−93 49		
	−77 43	186 50	W.	− 72 04	E.S.E.		−22 02	−94 06		
2 P.M.	−77 45	187 00	R.	− 69 50	S.E. by E.		−19 55	−89 45		
	−77 45	187 00	R.	− 72 25	S.E. by E. ½ E.		−20 58	−93 23		
	−77 47	186 52	T.	− 69 57	E. by S. ½ S.		−22 39	−92 36		
	−77 47	186 52	SM.	− 72 53	E.S.E.		−22 02	−94 55		
	−77 45	186 52	R.	− 73 10	E.S.E.	−86 10	−22 02	−95 12	−94 14	
	−77 45	186 52	R.	− 72 56	E. by S. ½ S.		−22 39	−95 35		
	−77 46	186 51	S.	− 74 47	E.S.E.		−22 02	−96 49		
	−77 46	186 51	T.	− 74 38	S.E. by E. ½ E.		−20 58	−95 36		
	−77 47	186 51	R.	− 75 01	E.S.E.		−22 02	−97 03		
	−77 56	186 51	R.	− 74 22	E.		−23 36	−97 58		
	−77 56	186 51	T.	− 72 32	E. ½ N.		−23 16	−95 48		
	−77 57	186 44	R.	− 71 21	E.		−23 36	−94 57		
	−77 57	186 44	R.	− 75 38	E.N.E.		−21 23	−97 01		
	−77 57	186 44	T.	− 74 27	E ¼ N.	−86 10	−23 26	−97 53	−96 14	
	−77 59	186 47	R.	− 72 03	E.		−23 36	−95 39		
	−78 00	186 45	R.	− 72 10	E.S.E.		−22 02	−94 12		
3 A.M.	−77 32	186 00	SM.	−117 40	W. by S. ½ S.		+22 40	−95 00		
	−77 32	186 00	T.	−118 47	W.S.W.		+22 02	−96 45		
4 A.M.	−77 05	192 32	S.	− 77 52	S. by E.		− 4 18	−82 10		
	−77 06	192 33	T.	− 77 44	S. ¼ E.		− 1 04	−78 48		
	−77 06	192 33	O.	− 76 31	S. ½ E.		− 2 08	−78 39		
	−77 54	192 30	Y.	− 62 21	E.N.E.	−85 50	−19 31	−81 52		
	−77 54	192 30	S.	− 60 36	E.N.E.		−19 31	−80 07		
	−77 54	192 30	O.	− 63 11	N.E. by E.		−17 24	−80 35		
	−76 57	192 37	T.	− 59 54	N.E. by E. ½ E.		−18 27	−78 21	−81 50	
4 P.M.	−77 6	192 34	R.	− 61 29	E. by N. ½ N.		−19 24	−80 53		
	−77 9	192 43	R.	− 62 14	E. by N.		−20 04	−82 18		
	−77 9	192 43	T.	− 62 31	E. by N.		−20 04	−82 35		
	−77 13	192 51	R.	− 68 53	E. by N. ½ N.	−85 40	−19 24	−88 17		
	−77 13	192 51	T.	− 67 45	N.E. by E. ¾ E.		−18 13	−85 58		
	−77 13	192 49	R.	− 93 17	S.S.W. ½ W.		+10 00	−83 17		
5 A.M.	−77 24	192 56	S.	− 81 22	S.		0 00	−81 22		
	−77 8	192 59	O.	− 63 33	E.		−20 38	−84 11		
	−77 8	192 59	T.	− 77 06	S. by E.		− 4 08	−81 14		
	−77 8	192 59	T.	− 83 12	S.	−85 40	0 00	−83 12	−82 26	
	−77 8	192 59	T.	− 92 23	S.S.W. ½ W.		+10 01	−82 22		
	−77 8	192 59	W.	− 92 16	S.S.W. ½ W.		+10 01	−82 15		
	−77 19	192 50	T.	− 83 00	S. ¼ W.		+ 1 00	−82 00		
5 P.M.	−77 16	191 32	R.	− 89 26	S. by W. ½ W.		+ 6 10	−83 16		
	−77 16	191 32	R.	− 80 06	S. by E. ½ E.		− 6 10	−86 16		
	−77 16	191 32	R.	− 70 42	S.E. ½ S.	−85 40	−13 26	−84 08	−83 56	
	−77 16	191 32	R.	− 63 24	E. ½ S.		−20 30	−83 54		
	−77 16	191 32	R.	− 66 30	S.E. by E.		−17 34	−84 04		

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Initials.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Mean Declination.	Remarks.
	° ′	° ′		° ′		° ′	° ′	° ′	° ′	
Feb. 6 A.M.	−77 14	190 2	S.	− 87 49	S. by W.		+ 4 28	− 83 21		
	−77 05	189 2	T.	− 88 18	S. by W.		+ 4 28	− 83 50		
	−77 09	188 50	Sm.	− 83 07	S. ¾ W.		+ 3 20	− 79 47		
	−77 09	188 50	T.	− 85 52	S. ¾ W.	−86 00	+ 3 20	− 82 32	−82 09	
	−77 09	188 50	T.	− 58 23	E. by N.		−21 50	− 80 13		
	−77 04	188 40	T.	− 80 58	S. ½ E.		− 2 14	− 83 12		
7 A.M.	−76 58	186 40	T.	− 94 54	S.S.W. ¼ W.		+10 02	− 84 52		
	−76 58	186 40	T.	− 91 17	S.S.W.		+ 9 02	− 82 15		
	−76 58	186 40	T.	− 87 10	S. by W. ½ W.		+ 6 45	− 80 25		
	−76 58	186 40	T.	− 59 46	E. ½ S.		−22 52	− 82 38		
	−76 56	186 39	S.	− 59 16	E. ½ S.	−86 05	−22 52	− 82 08	−81 33	
	−76 56	186 39	O.	− 56 07	E. ¼ N.		−22 53	− 79 00		
	−76 56	186 39	T.	− 57 38	E. ½ S.		−22 52	− 80 30		
	−76 56	186 39	O.	− 57 12	E. by S.		−22 43	− 79 55		
	−76 57	186 36	S.	− 60 09	E. by S. ½ S.		−22 06	− 82 15		
7 P.M.	−77 11	187 03	T.	− 68 38	E. by S. ¼ S.		−21 54	− 80 32		
	−77 11	187 03	R.	− 68 31	E. by S. ¼ S.		−21 36	− 90 07		
	−77 12	187 03	T.	− 70 01	S.E. by E. ½ E.		−20 02	− 90 03		
	−77 12	187 03	T.	− 66 16	S.E. by E.		−19 02	− 85 18		
	−77 12	187 03	R.	− 67 27	S.E. by E.	−86 00	−19 02	− 86 29	−87 29	
	−77 12	187 03	R.	− 81 21	S.S.E.		− 8 52	− 90 13		
	−77 14	187 01	R.	− 74 43	S.E. by S.		−12 49	− 87 32		
	−77 14	187 01	R.	− 72 20	S.E.		−16 15	− 88 35		
	−77 14	187 01	T.	− 72 00	S.E.		−16 15	− 88 15		
	−77 13	186 54	W.	− 71 29	S.E.		−16 15	− 87 44		
8 A.M.	−77 24	186 19	S.	− 65 24	E.S.E.		−21 02	− 86 26		
	−77 24	186 19	O.	− 65 32	E.S.E.		−21 02	− 86 34		
	−77 21	186 22	T.	− 68 19	E. by S. ½ S.		−21 37	− 89 56		
	−77 21	186 22	Y.	− 67 35	E. ½ S.	−86 00	−22 19	− 89 54	−89 19	
	−77 21	186 22	Y.	− 71 43	E.S.E.		−21 02	− 92 45		
	−77 21	186 22	T.	− 69 19	E.S.E.		−21 02	− 90 21		
	−77 21	186 22	O.	− 67 29	E.S.E.		−21 02	− 88 31		
	−77 21	186 22	S.	− 67 38	E.S.E.		−21 02	− 88 40		
	−77 30	186 40	T.	− 71 42	E.S.E.		−21 02	− 91 44		
	−77 30	186 40	W.	− 70 31	E.S.E.	−86 00	−21 02	− 91 33	−90 21	
	−77 30	186 40	T.	− 69 39	E.		−22 27	− 92 06		
	−77 37	186 36	R.	− 67 40	E. by N.		−21 50	− 89 30		
8 P.M.	−77 47	187 18	R.	− 72 51	E. by N. ½ N.		−21 6	− 93 57		
	−77 47	187 10	S.	− 74 04	E.N.E.		−20 23	− 94 27		
	−77 48	187 29	O.	− 74 17	E.N.E.		−20 23	− 94 40		
	−77 48	187 29	T.	− 75 35	E.N.E.	−86 00	−20 23	− 95 58	−95 52	
	−77 50	187 35	T.	− 76 38	N.E. by E. ½ E.		−19 18	− 95 56		
	−77 50	187 35	W.	− 79 50	E.N.E.		−20 23	−100 13		
	−77 49	187 25	R.	− 76 04	E.N.E.		−20 23	− 96 27		
	−77 49	187 25	T.	− 79 29	N.E. by E.		−18 11	− 97 40		
	−77 50	187 31	R.	− 75 32	N.E. by E.		−18 11	− 93 43		
	−77 51	187 36	R.	− 77 19	N.E. by E. ½ E.	−86 00	−19 18	− 96 37	−96 00	
	−77 53	187 44	R.	− 80 42	N.E.		−15 20	− 96 02		
	−77 57	188 06	T.	− 95 31	N.		0 00	− 95 31		
9 A.M.	−77 52	191 16	W.	−108 01	S.W. ½ S.		+13 57	− 94 04		
	−77 52	191 16	T.	−109 17	S.W. ½ S.		+13 57	− 95 20		
	−77 52	191 07	Y.	−108 43	S.W. ½ S.	−85 50	+13 57	− 94 46	−93 43	
	−77 52	191 07	T.	−103 50	S.W. by S.		+12 18	− 91 32		
	−77 48	190 23	T.	−101 26	S.S.W.		+ 8 30	− 92 56		

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Initials.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Mean Declination.	Remarks.
	° ′	° ′		° ′		° ′	° ′	° ′	° ′	
Feb. 9 P.M.	−77 57	188 30	R.	−102 30	S.S.W.		+ 8 52	− 93 38		
	−77 56	188 40	R.	−110 29	S.W. ½ S.		+14 32	− 95 57		
	−77 56	188 40	R.	−106 13	S.S.W. ¾ W.		+11 50	− 94 23		
	−77 54	188 36	R.	−105 51	S.W. by S.		+12 49	− 93 02		
	−77 54	188 36	S.	−103 13	S.S.W. ½ W.	−86 00	+10 50	− 92 23	− 93 41	
	−77 51	188 24	R.	−103 18	S.S.W. ½ W.		+10 50	− 92 28		
	−77 50	188 06	R.	− 94 04	S. ¼ W.		+ 1 04	− 93 00		
	−77 50	188 06	S.	− 94 38	S.		0 0	− 94 38		
10 A.M.	−77 35	187 59	S.	− 94 12	S.		0 0	− 94 12		
	−77 57	187 38	T.	−110 56	S.W. ½ W.		+17 38	− 93 18		
	−77 38	188 07	Y.	− 97 53	S. by W.		+ 4 28	− 93 25		
	−77 38	188 07	T.	−101 54	S.S.W.		+ 8 52	− 93 02		
	−77 40	188 00	SM.	−108 00	S.W. by S.	−86 00	+12 49	− 95 11	− 93 41	
	−77 48	188 00	S.	−108 49	S.W. by S.		+12 49	− 96 00		
	−77 48	188 00	O.	−105 38	S.W. ½ S.		+14 32	− 91 06		
	−77 48	188 04	T.	−106 04	S.W. by S.		+12 49	− 93 15		
11 A.M.	−76 45	189 06	O.	− 74 47	S. ¼ E.		− 1 06	− 75 53		
	−76 46	188 40	S	− 86 56	S. by W. ½ W.		+ 6 40	− 80 16		
	−76 46	188 40	S.	− 80 11	S.	−86 00	0 00	− 80 11	− 77 53	
	−76 46	188 40	S.	− 95 11	S.W. ½ S.		+14 32	− 80 39		
11 P.M.	−76 14	187 11	S.	− 86 06	N.W. ½ N.		+13 39	− 72 27		
14 A.M.	−76 23	178 25	S.	− 98 02	S. by W. ½ W.		+ 8 50	− 89 12		
	−76 24	176 26	R.	− 91 24	S. by W. ¾ W.	−87 00	+10 17	− 81 07	− 85 10	
15 P.M.	−76 03	168 56	R.	− 85 31	S. by E. ¼ E.		−10 13	− 95 44		
	−76 05	168 56	S.	− 88 32	S. by E. ½ E.		−12 13	−100 45		
	−76 05	168 56	O.	− 86 55	S. by E. ½ E.	−87 50	−12 13	− 99 08	− 98 45	
	−76 16	168 11	R.	− 85 10	S. by E. ¾ E.		−14 13	− 99 23		
16 A.M.	−76 20	165 33	S.	− 60 54	E. ½ N.		−45 47	−106 41		
	−76 20	165 33	T.	− 69 12	S.E. by E.		−37 32	−106 44		
	−76 20	165 33	O.	− 67 08	S.E. by E.		−37 32	−104 40		
	−76 20	165 33	Y.	− 65 20	E.S.E.	−87 53	−42 18	−107 38	−106 13	
	−76 20	165 33	T.	− 64 59	E.S.E.		−42 18	−107 17		
	−76 30	166 39	R.	− 58 06	E.		−46 13	−104 19		
16 P.M.	−76 35	166 17	R.	− 64 23	E. by S. ½ S.		−44 03	−108 26		
	−76 36	166 17	R.	−136 19	N.N.W. ½ W.		+19 46	−116 33		
	−76 36	166 17	Y.	−150 04	W.N.W.		+41 38	−108 26		
	−76 36	166 16	T.	−138 24	N.W. by N.		+23 31	−114 53		
	−76 36	166 16	Y.	−158 51	W.		+46 13	−112 38		
	−76 36	166 16	Y.	−156 58	W. by S. ½ S.		+44 03	−112 55		
	−76 36	166 16	T.	−156 05	S.W. ¼ W.		+33 04	−123 01		
	−76 36	166 17	R.	−154 06	S.W. by W.	−87 53*	+37 32	−116 34	−113 23	
	−76 36	166 17	R.	−142 54	S.W. ¼ S.		+29 45	−113 09		
	−76 37	166 16	R.	− 67 01	E.N.E.		−41 38	−108 39		
	−76 37	166 16	R.	− 67 53	E. by S.		−45 19	−111 51		
	−76 37	166 16	S.	− 66 32	E. by S.		−45 19	−113 12		
	−76 37	166 16	T.	− 73 45	E.S.E.		−42 18	−116 03		
	−76 37	166 35	R.	− 73 40	S.E. by E.		−37 32	−111 12		

* The inclination on the 16th of February is computed from the observed declinations with the head West — 158° 51′, and E. by S. — 67° 12′. From these we have the approximate inclination $\theta = -87° 52'$. With this value of θ, $\psi' = -66° 27'$ at East. Whence $\psi = -\frac{158° 51' + 66° 27'}{2} = -112° 39'$; δ at East or West $= 46° 12'$; and $\tan\theta = \frac{\sin 46° 12'}{a} = \frac{\cdot 7218}{\cdot 0267} = -87° 53'$.

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Initials.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Mean Declination.	Remarks.
	° ′	° ′		° ′		° ′	° ′	° ′	° ′	
Feb. 17 A.M.	−76 44	165 48	S.	−122 02	S. by W.		+ 9 18	−112 44		
	−76 44	165 48	O.	−123 18	S. by W.		+ 9 18	−114 00		
	−76 44	165 48	Y.	−124 51	S. by W.		+ 9 18	−115 33		
17 P.M.	−76 27	164 18	R.	−113 59	S.		0 00	−113 59		
	−76 27	164 11	R.	−112 11	S.	−88 05	0 00	−112 11	−113 41	
	−76 26	164 02	R.	− 73 51	S.E. ½ E.		−38 49	−112 40		
	−76 26	164 02	T.	− 71 53	S.E. by E. ¼ E.		−43 52	−115 45		
	−76 26	164 02	R.	− 73 51	S.E. ½ E.		−38 49	−112 40		
18 A.M.	−76 16	165 53	T.	− 49 06	E. by S.		−51 20	−100 26		
	−76 16	165 53	T.	− 51 14	E. by S. ½ S.		−49 37	−100 51		
	−76 05	166 11	T.	− 71 05	N.E. by N.	−88 04*	−25 56	− 97 01	− 99 41	
18 P.M.	−76 06	166 11	T.	−152 46	W.		+52 20	−100 26		
	−76 03	166 23	S.	−142 55	W.N.W.		+46 47	− 96 08		
	−76 03	166 23	S.	−144 38	W. by N.		+51 20	− 93 18		
	−75 58	167 04	T.	− 71 05	N.E. by N.		−25 56	− 97 01		
	−75 58	167 04	T.	−149 32	W.		+52 20	− 97 12		
	−75 49	167 32	R.	−134 35	S.W. by W.	−88 04	+42 07	− 92 28	− 94 27	
	−75 45	167 32	R.	−132 32	S.W. by W.		+42 07	− 90 25		
	−75 42	167 30	S.	−135 47	S.W. by W.		+42 07	− 93 40		
	−75 42	167 30	R.	−133 08	S.W. ½ W.		+37 47	− 95 21		
19 P.M.	−74 46	167 53	R.	−110 59	S.W.		+34 12	− 76 47		
	−74 46	167 53	T.	−107 01	S.W.	−88 02	+34 12	− 72 49	− 74 48	
22 P.M.	−70 27	166 40	R.	− 18 35	E. by S. ¼ S.		−20 57	− 39 32		
	−70 27	166 40	T.	− 16 21	E. by N. ½ N.		−20 13	− 36 34		
24 A.M.	−70 14	168 13	Y.	− 50 20	N.W. ½ N.		+13 03	− 37 17		
	−70 14	168 13	T.	− 49 18	N.W. ½ N.	−85 50	+13 03	− 36 15	− 39 45	
24 P.M.	−70 24	167 20	S.	− 41 55	S. ½ E.		− 2 08	− 44 03		
	−70 26	167 19	R.	− 42 49	S.		0 00	− 42 49		
	−70 26	167 19	O.	− 41 44	S.		0 00	− 41 44		
25 P.M.	−70 07	167 27	R.	− 40 24	S. ½ W.		+ 2 08	− 38 16		
	−70 07	167 27	T.	− 40 16	S. ½ W.		+ 2 08	− 38 08		
	−70 06	167 29	R.	− 41 14	S.		0 00	− 41 14		
	−70 06	167 29	R.	− 44 06	N. by W. ¾ W.		+ 6 52	− 37 14		
	−70 04	167 32	T.	− 49 16	N.N.W.		+ 7 50	− 41 26		
	−70 04	167 32	T.	− 56 14	N.W. by W. ½ W.	−85 50	+18 27	− 37 47	− 39 21	
	−70 02	167 35	R.	− 52 55	N.W. by W.		+17 24	− 35 31		
	−70 02	167 11	S.	− 42 51	S. by W.		+ 4 17	− 38 34		
	−70 03	167 26	R.	− 46 21	S. by W.		+ 4 17	− 42 04		
26 A.M.	−69 54	167 56	S.	− 61 35	S.W. by W.		+18 16	− 43 19		
27 P.M.	−69 17	168 00	R.	− 48 44	N.W.		+13 27	− 35 17		
	−69 17	168 00	O.	− 50 39	N.W. ½ W.	−85 28	+15 12	− 35 27		
	−69 16	167 49	S.	− 45 13	S. by W.		+ 3 58	− 41 15		
	−69 25	167 39	R.	− 40 39	S. by W.		+ 3 58	− 36 41		
28 A.M.	−69 40	167 14	SM.	− 34 21	S. by E.		− 4 12	− 38 33		
	−69 40	167 14	T.	− 35 28	S. by E. ½ E.		− 6 18	− 41 46	− 38 21	
	−69 40	167 25	T.	− 35 17	S. by E. ½ E.		− 6 18	− 41 35		
	−69 40	167 25	O.	− 36 51	S. by E.	−85 45	− 4 12	− 41 03		
	−69 40	167 27	S.	− 37 06	S. ½ E.		− 2 05	− 39 11		
28 P.M.	−69 47	167 13	R.	− 56 47	W.N.W.		+19 07	− 37 40		
	−69 36	167 14	R.	− 50 21	N.W. by W.		+17 02	− 33 19		

* The inclination is computed from the observed declination at West − 152° 46′, and at E. by S. − 49° 06′; with the approximate inclination which these give we have ψ' at East − 48° 06′; $\psi = -\frac{152^\circ\ 46' + 48^\circ\ 06'}{2}$ = − 100° 26′; δ at East and West 52° 20′; and $\theta = -\frac{\sin 52^\circ\ 20'}{\cdot 0267} = -88^\circ\ 04'$.

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Initials.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Mean Declination.	Remarks.
	° ′	° ′		° ′		° ′	° ′	° ′	° ′	
Mar. 1 A.M.	−69 22	167 40	S.	−47 21	N.W.		+12 31	−34 50		
1 P.M.	−68 51	167 47	R.	−48 53	N.W.byW.½W.		+15 45	−33 08		
	−68 56	167 49	O.	−33 25	S.		0 00	−33 25		
	−68 56	167 49	S.	−33 40	S. ½ E.		− 1 52	−35 32		
	−68 56	167 49	W.	−35 23	S. ½ E.		− 1 52	−37 15		
	−68 55	167 46	S.	−36 27	S. ½ E.	−85 10	− 1 52	−37 19	−36 12	
	−68 55	167 46	T.	−31 54	S. by E.		− 3 45	−35 39		
	−68 55	167 49	R.	−30 30	S.S.E.		− 7 22	−37 52		
	−68 55	167 49	T.	−32 46	S. ½ E.		− 1 52	−34 38		
	−68 57	167 46	R.	−30 24	S. by E. ½ E.		− 5 33	−35 57		
	−69 02	167 42	R.	−30 30	S.E. by S.		−10 40	−41 10		
	−69 03	167 41	R.	−56 02	W. ½ S.		+18 19	−37 43		
2 P.M.	−68 13	167 56	R.	−49 58	W. by N.		+15 07	−34 51		
	−68 12	167 53	T.	−50 32	W. ¼ S.		+15 38	−34 54		
	−68 12	167 53	W.	−48 26	W. ¼ N.	−84 20	+15 30	−32 56		
	−68 12	167 53	T.	−46 36	W. ¼ N.		+15 30	−31 06		
	−68 09	167 45	R.	−45 44	W. ½ N.		+15 22	−30 22	−32 35	
3 A.M.	−67 40	167 40	T.	−48 33	W. ½ S.		+15 20	−33 13		
3 P.M.	−67 24	166 34	R.	−47 00	W. by S. ½ S.	−84 15	+14 52	−32 08		
	−67 23	166 33	S.	−46 12	W. by S.		+15 15	−30 57		
5 P.M.	−65 30	167 34	R.	−32 28	S.W. ½ S.		+ 9 23	−23 05		
6 A.M.	−65 40	165 06	T.	−36 36	S.S.W. ½ W.		+ 7 00	−29 36		
	−65 42	164 56	T.	−35 04	S.S.W.		+ 5 45	−29 19		
	−65 42	164 56	Sm.	−32 27	S.S.W. ½ W.		+ 7 00	−25 27		
	−65 42	164 56	O.	−30 51	S. by W.		+ 2 57	−27 54		
	−65 42	164 56	T.	−33 09	S. by W. ½ W.		+ 4 21	−28 48		
	−65 44	165 05	Y.	−35 17	S. by W. ½ W.	−83 45	+ 4 21	−30 56	−28 23	
	−65 44	165 05	S.	−38 41	S.W. ½ S.		+ 9 23	−29 18		
	−65 44	165 05	W.	−33 03	S.S.W. ½ W.		+ 7 00	−26 03		
	−65 44	165 05	W.	−37 39	S.W. by S.		+ 8 17	−29 22		
	−65 44	165 05	S.	−37 02	S.W. by S.		+ 8 17	−28 45		
	−65 50	164 41	R.	−35 55	S.S.W.		+ 5 45	−30 10		
	−65 50	164 42	R.	−38 38	S.W. by S.		+ 8 17	−30 21		
7 A.M.	−65 25	162 06	Y.	−32 12	N.W. ½ N.		+ 8 38	−23 34		
	−65 25	162 06	T.	−27 09	N. ¾ W.		+ 1 12	−25 57		
	−65 25	162 06	O.	−30 52	N. by W.	−83 50	+ 2 32	−28 20		
	−65 25	162 06	W.	−30 37	N.N.W. ½ W.		+ 6 22	−24 15		
	−65 25	162 06	T.	−30 50	N.N.W.		+ 5 09	−25 41	−25 54	
8 P.M.	−64 37	163 07	S.	−14 56	E. by N. ½ N.		−11 42	−26 38		
	−64 37	163 07	R.	−15 13	E. by N. ½ N.	−83 00	−11 42	−26 55		
9 P.M.	−64 32	163 59	R.	−34 46	S.W. by S.		+ 7 39	−27 07		
10 P.M.	−64 02	163 31	S.	−26 40	S. ¾ W.		+ 2 00	−24 40		
11 A.M.	−64 17	163 17	T.	−32 51	N.W.		+ 8 26	−24 25		
	−64 16	163 18	T.	−34 35	N.W. ½ W.		+ 9 12	−25 23		
	−64 16	163 18	Y.	−37 50	N.W. by W.		+ 9 59	−27 51		
	−64 16	163 18	W.	−35 16	N W. by W.		+ 9 59	−25 17		
	−64 16	163 18	Sm.	−36 46	W.N.W.		+11 17	−25 29		
	−64 16	163 19	T.	−36 10	W.N.W.	−83 00	+11 17	−24 53	−25 18	
11 P.M.	−64 02	163 06	S.	−32 38	S.W. by S.		+ 7 39	−24 59		
	−64 04	163 06	O.	−32 04	S.S.W. ½ W.		+ 6 25	−25 39		
	−64 04	163 02	T.	−33 33	S.W. by S.		+ 7 39	−25 54		
	−64 03	163 49	S.	−36 22	S.W. by W.		+10 53	−25 29		
	−64 03	162 45	W.	−34 23	S.W.byW.½W.		+11 25	−22 58		
12 A.M.	−63 57	161 11	T.	−28 07	S. by W.		+ 2 42	−25 25		
	−63 58	161 15	S.	−34 04	S.W. by S.		+ 7 39	−26 25		
12 P.M.	−64 07	161 16	T.	−35 27	W.N.W.	−83 00	+11 17	−24 10	−24 06	

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Initials.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Mean Declination.	Remarks.
Mar. 12 P.M.	−64° 07′	161° 16′	W.	−35° 19′	W.N.W.	−83° 00′	+11° 17′	−24° 02′	−24° 06′	
	−64 07	161 16	R.	−36 25	W. by N. ½ N.		+11 42	−24 43		
	−64 07	161 16	T.	−36 17	W. ½ N.		+12 20	−23 57		
	−64 07	161 16	T.	−35 30	W. ½ S.		+12 30	−23 00		
	−64 06	161 10	R.	−35 11	W. by S.		+12 30	−22 41		
	−64 06	161 05	R.	−35 02	W. by S.		+12 30	−22 32		
14 P.M.	−62 48	157 14	R.	−18 31	S.E. by S.		− 7 07	−25 38		
	−62 48	157 14	O.	−21 04	S.S.E.		− 4 53	−25 57		
	−62 48	157 14	S.	−21 31	S.S.E.		− 4 53	−26 24		
	−62 50	157 14	R.	−19 00	S. by E. ½ E.	−82 33	− 3 43	−22 43		
	−62 50	157 14	R.	−12 11	S.E. by E.		−10 14	−22 35	−24 07	
	−62 50	157 14	Y.	−23 23	S.S.E.		− 4 53	−28 16		
	−62 55	157 02	W.	−22 29	S. by E.		− 2 32	−25 01		
17 A.M.	−64 19	153 40	T.	−28 35	S.W. by S.		+ 8 39	−19 56		
	−64 19	153 40	W.	−29 15	S.W. by S.	−84 00	+ 8 39	−20 36		
18 A.M.	−63 54	151 56	SM.	− 6 11	E.N.E.		−13 28	−19 39		
	−63 54	151 52	S.	− 5 25	E.		−14 55	−20 20		
	−63 54	151 52	O.	− 7 29	S.E. by E.		−12 48	−20 17		
	−63 50	151 48	T.	− 7 33	S.E. by E.	−84 06	−12 48	−20 21	−20 15	
	−63 50	151 48	SM.	− 7 15	S.E. by E.		−12 48	−20 03		
	−63 50	151 48	S.	− 8 05	S.E. by E.		−12 48	−20 53		
	−63 50	151 48	O.	− 8 21	S.E. by E. ½ E.		−13 16	−21 37		
	−63 50	151 48	R.	−18 02	S. by E.		− 3 00	−21 02		
	−63 50	151 48	T.	−19 05	S. by W.		+ 3 00	−16 05		
	−63 50	151 48	S.	−17 08	S.	−84 00	0 00	−17 08	−18 59	
	−63 50	151 48	R.	−14 09	S.S.E.		− 6 00	−20 09		
18 P.M.	−63 51	151 48	R.	−13 20	S. by E. ½ E.		− 4 30	−17 50		
19 A.M.	−64 14	149 10	T.	−27 16	S.W. by S.		+ 9 08	−18 08		
	−64 16	149 15	R.	−27 13	S.W. by S.		+ 9 08	−18 05		
	−64 16	149 15	W.	−26 08	S.W. by S.	−84 20	+ 9 08	−17 00	−16 41	
	−64 18	149 09	R.	−25 43	S.W. ½ S.		+10 20	−15 23		
19 P.M.	−64 24	148 27	R.	−26 04	S.W. by S.		+ 9 08	−16 56		
20 P.M.	−65 04	142 49	R.	−31 29	W.	−85 25	+19 26	−12 03	−12 37	
	−65 03	142 46	R.	−30 34	S.W. by W. ½ W.		+17 23	−13 11		
21 A.M.	−64 26	140 46	SM.	−24 11	W.N.W.		+15 50	− 8 21		
	−64 26	140 46	Y.	−21 11	W.N.W.		+15 50	− 5 21		
	−64 26	140 46	SM.	−22 47	W.N.W.		+15 50	− 6 57		
	−64 26	140 46	O.	−21 18	N.W. by W.	−84 55	+14 00	− 7 18	− 6 57	
	−64 18	140 27	S.	−19 40	N.W. by W.		+14 00	− 5 40		
21 P.M.	−64 01	140 31	W.	−23 56	W.N.W.		+15 50	− 8 06		
22 A.M.	−63 18	140 04	S.	− 3 46	N.		0 00	− 3 46		
	−63 18	140 04	O.	− 1 55	N. ½ E.		− 1 23	− 3 18		
	−63 18	140 04	T.	− 6 16	N. by W.		+ 2 44	− 3 32		
	−63 18	140 04	T.	−19 52	W. by N. ½ N.		+ 3 57	− 5 55		
	−63 18	140 04	Y.	−18 31	W.N.W.		+13 27	− 5 04		
	−63 20	139 52	S.	−20 19	W.N.W.		+13 27	− 6 52		
	−63 14	139 43	R.	−19 39	N.W. by W. ½ W.	−84 05	+12 37	− 7 02	− 5 58	
	−63 14	139 43	R.	−22 28	W.		+14 54	− 7 34		
	−63 09	139 28	R.	−21 01	W.N.W.		+13 27	− 7 34		
	−63 03	139 38	R.	−20 52	N.W. by W. ½ W.		+12 37	− 8 15		
	−63 03	139 38	R.	−14 41	N.W. ½ N.		+ 9 04	− 5 37		
	−63 03	139 38	R.	−22 01	W.		+14 54	− 7 07		
22 P.M.	−62 53	139 06	R.	−15 17	N.W. by W.		+11 39	− 3 38		
	−62 52	139 05	R.	−14 43	N.W. ¾ W.		+11 14	− 3 29		
	−62 32	137 40	R.	−20 26	W.	−84 00	+14 43	− 5 43	− 4 05	

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Initials.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Mean Declination.	Remarks.
Mar. 22 P.M.	−62 32	137 40	R.	−16 55	W. by N. ½ N.	−84 00	+13 46	− 3 09	− 4 05	
	−62 28	137 26	R.	−18 35	W. by S. ½ S.		+14 17	− 4 18		
	−62 28	137 26	R.	−18 29	W. by N.		+14 15	− 4 14		
23 A.M.	−62 05	136 05	Sm.	−12 53	N.W. ½ W.		+10 18	− 2 35		
	−62 18	136 25	T.	−14 00	N.W. by W.		+11 08	− 2 52		
	−62 18	136 25	W.	−13 48	N.W. by W.		+11 08	− 2 40		
	−62 20	136 27	R.	−11 53	N.W. by W.	−83 45	+11 08	− 0 45	− 1 12	
	−62 17	136 29	R.	−11 41	N.W. by W.		+11 08	− 0 33		
	−62 16	136 26	R.	− 9 59	N.W. by W.		+11 08	+ 1 09		
	−62 13	136 20	R.	−11 19	N.W. by W.		+11 08	− 0 11		
23 P.M.	−62 07	136 08	R.	−11 05	N.W.by W.½W.		+11 27	+ 0 22		
	−62 07	136 08	R.	−14 02	W. ¼ S.		+13 32	− 0 30		
	−62 06	136 07	R.	−11 00	S.W. by W.		+11 39	+ 0 39		
	−62 06	136 07	O.	−14 49	W. by N.	−83 30	+13 07	− 1 42	− 0 27	
	−62 06	136 07	S.	−10 59	N.W. by W.		+10 42	− 0 17		
	−62 06	136 06	T.	−12 41	N.W.by W.½W.		+11 27	− 1 14		
25 A.M.	−60 30	131 47	S.	+ 0 15	N.W.		+ 8 40	+ 8 55		
	−60 30	131 47	O.	+ 1 13	N.W.		+ 8 40	+ 9 53		
	−60 30	131 47	Y.	+ 0 16	N.W.		+ 8 40	+ 8 56		
	−60 30	131 47	W.	+ 0 50	N.W.		+ 8 40	+ 9 31		
	−60 30	131 47	T.	− 0 35	N.W.		+ 8 40	+ 8 05		
	−60 23	131 28	R.	− 1 51	N.W. ½ W.	−83 10	+ 9 24	+ 7 33	+ 8 09	
	−60 23	131 28	R.	− 5 51	W.		+12 53	+ 7 02		
	−60 23	131 28	T.	− 3 10	N.W.		+ 8 40	+ 5 30		
	−60 23	131 28	W.	− 1 51	N.W.		+ 8 40	+ 6 49		
	−60 22	131 27	R.	+ 0 33	N.W.		+ 8 40	+ 9 13		
25 P.M.	−60 20	131 22	R.	+ 1 00	N.W. by N.		+ 6 44	+ 7 44		
	−60 20	131 22	T.	+18 20	E.N.E.		−11 17	+ 7 03		
	−60 20	131 22	T.	+18 12	E. ½ S.		−12 31	+ 5 41		
	−60 20	131 22	R.	+14 06	N.E. by N.	−83 00	− 6 44	+ 7 22	+ 7 38	
	−60 20	131 21	R.	+18 59	N.E. by E.¾E.		−10 57	+ 8 02		
	−60 20	131 21	Sm.	+19 01	E.N.E.		−11 17	+ 7 44		
	−60 20	131 21	R.	+22 22	E.		−12 33	+ 9 49		
	−60 20	131 21	Sm.	+17 35	N.E. by E.		− 9 59	+ 7 36		
	−60 20	131 21	T.	+18 36	E.N.E.		−11 17	+ 7 19		
	−60 20	131 21	S.	+18 17	N.E. by E.		− 9 59	+ 8 18		
	−60 20	131 21	W.	+20 05	E. ½ N.		−12 20	+ 7 45		
	−60 20	131 21	R.	+18 49	N.E. by E.½E.	−83 00	−10 37	+ 8 12	+ 8 18	
	−60 20	131 21	R.	+16 36	N.E.		− 8 26	+ 8 10		
	−60 19	131 21	R.	+ 3 47	N.W. by N.		+ 6 44	+10 31		
	−60 19	131 21	R.	+ 8 33	N.		0 00	+ 8 33		
26 A.M.	−59 25	130 14	R.	+ 3 21	N.W. by N.		+ 6 12	+ 9 33		
26 P.M.	−59 13	130 02	R.	+ 7 01	N.		0 00	+ 7 01		
	−59 13	130 02	S.	+ 4 42	N.N.W.		+ 4 10	+ 8 52		
	−59 11	130 00	R.	+ 1 49	N.N.W.		+ 4 10	+ 5 59		
	−59 10	129 56	R.	+ 2 32	N.N.W.	−82 36	+ 4 10	+ 6 42		
	−59 10	129 56	O.	+ 1 48	N.N.W.		+ 4 10	+ 5 58	+ 8 32	
	−59 10	129 56	W.	+ 2 48	N.N.W.		+ 4 10	+ 6 58		
	−59 03	129 40	S.	+ 4 59	N.N.W.		+ 4 10	+ 9 09		
27 A.M.	−58 08	128 46	R.	+ 8 55	N.N.W.		+ 3 54	+12 49		
	−58 08	128 46	S.	+ 5 44	N.N.W.	−82 00	+ 3 54	+ 9 38		
	−58 06	128 43	S.	+ 6 53	N.N.W.		+ 3 54	+10 47		
28 A.M.	−57 24	127 50	W.	− 2 21	W. ½ S.		+10 41	+ 8 20		
	−57 24	127 50	O.	+ 0 05	W. ½ S.	−81 45	+10 41	+10 46	+ 8 47	

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Initials.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Mean Declination.	Remarks.
Mar. 28 A.M.	−57° 19′	127° 49′	R.	− 1° 35′	W. by S.	+81° 45′	+10° 40′	+ 9° 05′	+ 8° 47′	
	−57 19	127 49	T.	− 2 16	W. ½ S.		+10 41	+ 8 25		
	−57 20	127 47	R.	− 2 56	W.		+10 41	+ 7 45		
	−57 20	127 47	W.	− 1 20	W. ½ N.		+10 29	+ 9 09		
	−57 20	127 47	T.	− 3 05	W. by S. ¼ S.		+10 48	+ 7 43		
	−57 21	127 42	R.	− 2 05	W. ½ N.		+10 29	+ 8 24		
	−57 21	127 42	S.	− 3 34	W. ½ N.		+10 29	+ 6 55		
	−57 22	127 37	R.	+ 0 39	W.		+10 41	+11 20		
29 P.M.	−56 21	130 30	S.	+ 9 40	N.E.		− 6 27	+ 3 13		
	−56 21	130 42	R.	+13 12	N.E.		− 6 27	+ 6 45		
	−56 21	130 42	S.	+ 9 04	N.E.		− 6 27	+ 2 37		
	−56 16	130 46	R.	+13 24	N.E.		− 6 27	+ 6 37		
	−56 14	130 50	R.	+11 27	N.E.	−81 00	− 6 27	+ 5 00	+ 5 46	Very much motion; observations uncertain to two or three degrees.
	−56 05	130 42	T.	+14 07	N.E.		− 6 27	+ 7 40		
	−56 05	130 42	W.	+13 50	N.E. by N.		− 5 01	+ 8 49		
	−56 08	130 55	R.	+11 38	N.E.		− 6 27	+ 5 11		
30 A.M.	−55 20	131 39	SM.	+ 8 57	N.E. ½ E.		− 6 33	+ 2 24		
	−55 00	131 43	T.	+ 6 27	N.E. by N.		− 4 38	+ 1 49		
	−55 00	131 43	SM.	+ 5 43	N.E. by N.		− 4 38	+ 1 05		
	−55 00	131 43	S.	+ 6 27	N.E. by E.	−80 20	− 7 06	− 0 39	+ 1 34	
	−55 16	131 09	R.	+ 8 05	N.E. by E.		− 7 06	+ 0 59		
	−55 16	131 09	R.	+11 55	E.		− 8 59	+ 2 56		
	−55 14	131 12	R.	+ 8 55	N.E. ½ E.		− 6 33	+ 2 22		
	−55 14	131 12	T.	+ 6 27	N.E. ½ N.		− 5 17	+ 1 10		
	−55 14	131 12	S.	+ 4 16	N.E. by N.		− 4 38	− 0 22		
	−55 14	131 12	O.	+ 4 28	N.E. ½ N.		− 5 17	− 0 49		
	−55 14	131 18	Y.	+ 6 00	N.E. ½ E.	−80 20	− 6 33	− 0 33	+ 0 31	
	−55 14	131 18	W.	+ 5 28	N.E. by N.		− 4 38	+ 0 50		
	−55 11	131 15	R.	+ 6 33	N.E. by N.		− 4 38	+ 1 55		
	−55 11	131 15	T.	+ 6 04	N.E. by N.		− 4 38	+ 1 26		
30 P.M.	−55 05	132 48	W.	+ 3 18	N.E. ½ N.		− 5 05	− 1 47		
	−55 05	132 48	T.	+ 4 16	N.N.E.		− 3 00	+ 1 16		
	−55 05	132 48	S.	− 2 50	N.		0 00	− 2 50		
	−55 05	132 48	T.	+ 7 07	N.E. by N.		− 4 27	+ 2 40		
	−55 07	132 37	R.	+ 8 14	N.E. by N.	−80 00	− 4 27	+ 3 47	+ 1 05	
	−55 04	132 40	R.	+ 5 57	N.E. by N.		− 4 27	+ 1 30		
	−55 04	132 40	Y.	+ 8 43	N.E. by N.		− 4 27	+ 4 16		
	−55 02	132 42	R.	+ 4 56	N.E. by N.		− 4 27	+ 0 29		
	−55 02	132 42	T.	+ 4 55	N.E. by N.		− 4 27	+ 0 28		
31 A.M.	−54 07	134 31	S.	+ 4 23	N.E. by E.		− 6 29	− 2 06		
	−54 07	134 21	T.	+ 5 06	E.N.E.		− 7 26	− 2 14		
	−54 07	134 21	O.	+ 5 52	N.E. by E.		− 6 29	− 0 37		
	−54 01	134 35	T.	+ 5 57	E. by N.	−79 30	− 7 57	− 2 00	− 1 50	
	−54 01	134 35	S.	+ 6 33	E. ½ S.		− 8 16	− 1 43		
	−54 01	134 35	S.	+ 5 15	E. by N. ½ N.		− 7 38	− 2 23		
	−54 04	134 35	O.	+ 3 27	E.N.E.		− 7 26	− 3 53		
	−54 04	134 40	W.	+ 6 32	E.N.E.		− 7 26	− 0 48		
	−54 05	134 40	W.	+ 5 26	E. by N.		− 7 57	− 2 31		
	−54 04	134 43	R.	+ 6 25	E. by N. ½ N.	−79 30	− 7 38	− 1 13	− 1 44	
	−54 04	134 47	R.	+ 6 30	E. by N. ½ N.		− 7 38	− 1 08		
	−54 04	134 54	R.	+ 6 35	E. ½ N.		− 8 06	− 1 31		
	−54 04	134 54	R.	+ 7 04	E. ½ N.		− 8 06	− 1 02		
April 1 P.M.	−52 56	135 23	R.	+ 0 52	N.N.E.		− 2 42	− 1 50		
	−52 55	135 24	R.	+ 1 49	N.N.E.	−78 50	− 2 42	− 0 53	− 1 03	

Observations of Declination. (Continued.)

1841.	Position.		Initials.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Mean Declination.	Remarks.
	Lat.	Long.								
April 1 P.M.	−52° 55′	135° 24′	S.	+ 1° 34′	N.N.E.	−78° 50′	− 2° 42′	− 1° 08′	− 1° 03′	
	−52 51	135 26	T.	+ 0 30	N.N.E.		− 2 42	− 2 12		
	−52 49	135 29	T.	+ 3 13	N.N.E.		− 2 42	+ 0 31		
	−52 49	135 29	R.	+ 2 24	N.N.E.		− 2 42	− 0 18		
	−52 46	135 29	R.	+ 1 10	N.N.E.		− 2 42	− 1 32		
2 A.M.	−51 12	136 50	T.	− 1 37	N.E. by N.		− 3 30	− 5 07		
	−51 12	136 55	R.	− 1 00	N.N.E.		− 2 28	− 3 28		
	−51 12	136 55	S.	− 5 26	N.	−77 40	0 00	− 5 26	− 4 39	
	−51 06	136 52	T.	− 7 08	N. by W.		+ 1 12	− 5 56		
2 P.M.	−51 07	136 59	R.	− 0 49	N.N.E.		− 2 28	− 3 17		
5 P.M.	−44 52	143 30	S.	− 0 06	N.E. by E.		− 3 51	− 3 57		
	−44 52	143 28	R.	− 1 11	N.E. by E.	−73 20	− 3 51	− 5 02		
	−44 51	143 34	R.	− 5 41	S.E. by S.		− 3 17	− 8 58		
6 A.M.	−44 09	145 33	T.	− 6 33	E.		− 4 38	−11 11		
	−44 09	145 35	R.	− 5 35	N.E. by E. $\frac{1}{2}$ E.		− 3 42	− 9 17	− 8 46	
	−44 06	145 42	R.	− 7 01	N.E. by E.		− 3 26	−10 27		
	−44 05	145 43	T.	− 7 19	N.E. by E.	−71 40	− 3 26	−10 45		
	−44 01	145 53	T.	− 6 50	N.E. by E.		− 3 26	−10 16		
6 P.M.	−43 40	146 40	R.	− 5 58	N.E. $\frac{1}{2}$ E.		− 3 08	− 9 06		

Observations of the Inclination in H.M.S. Erebus, from September 1840 to April 1841, made with Needle R. F. 4.

Observers Captain Ross and Lieutenant Smith, R.N.

1840.	Position. Lat.	Position. Long.	Time of day.	Method employed.	Observed Inclination. Face east.	Ship's head.	Correction for ship's attraction.	Mean Inclination. Face east.	True Inclination.	Remarks.
	° ′	° ′	h m		° ′		′	° ′	° ′	
	Magnetic Observatory, Van Diemen									
Sept. 17.	Island.		2 P.M.	Direct.	−71 06·8					
	−42 52	147 24		S. at 20°.	−71 13·4					
				N. at 20°.	−71 12·1					
				S.	−71 15·1					
19.			11 A.M.	Direct.	−71 02·8					
28.			2 P.M.	Direct.	−71 05·7	Observed on shore.	.....	−71 06	−70 38	
			3 P.M.	Direct.	−70 58·4					
29.			1 P.M.	Direct.	−71 05·2					
				S. at 20°.	−71 09·9					
			to	S. at 20°.	−71 07·2					
				N. at 20°.	−70 58·5					
			3 P.M.	Direct.	−71 02·6					
Oct. 17.	At anchor.		1 30 P.M.	Direct.	−70 39·1	S.E. by S.	−43	−71 24		
				S.	−70 42·8					
				Direct.	−71 46·7	W.	+24	−71 24		
				S.	−71 48·5					
			2 P.M.	Direct.	−70 29·9	S. by E.	−61	−71 33		
				S.	−70 33·4					
				Direct.	−70 35·6	S.S.E.	−53	−71 33		
				S.	−70 44·1					
21.			2 30 P.M.	Direct.	−71 00·5	S.E.	−32	−71 27		
				S.	−70 49·6					
			1 45 P.M.	Direct.	−72 06·7	W.N.W.	+46	−71 24		
				Direct.	−72 12·6					
29.			6 A.M.	Direct.	−72 20·9	N.	+74	−71 06		
				S.	−72 18·7					
				Direct.	−72 12·5	N.N.E.	+70	−71 00		
				S.	−72 07·8					
				Direct.	−72 10·3	N.E.	+64	−70 58		
				S.	−71 54·8					
				Direct.	−72 01·6	E.N.E.	+46	−71 15		
				S.	−71 59·6					
				Direct.	−71 22·5	E.	+24	−71 02		
				S.	−71 30·0					
				Direct.	−72 17·0	N.N.W.	+71	−71 12		
				S.	−72 29·4					
				Direct.	−72 37·8	N.W.	+64	−71 27		
				S.	−72 24·3					
				Direct.	−71 21·0	W.S.W.	− 3	−71 26	−70 45	
				S.	−71 24·5					
				Direct.	−71 38·0	W.	+24	−71 17		
				S.	−71 44·7					
				Direct.	−71 57·7	W.N.W.	+46	−71 00		
				S.	−71 34·9					
				Direct.	−70 52·0	S.W.	−32	−71 20		
				S.	−70 43·7					
				Direct.	−70 38·5	S.S.W.	−52	−71 27		
				S.	−70 32·3					
				Direct.	−70 16·9	S.	−61	−71 18		
				S.	−70 17·0					
				Direct.	−70 16·7	S.S.E.	−53	−71 09		
				S.	−70 16·2					

Observations of Inclination. (Continued.)

1840.	Position. Lat.	Position. Long.	Time of day.	Method employed.	Observed Inclination. Face east.	Ship's head.	Correction for ship's attraction.	Mean Inclination. Face east.	True Inclination.	Remarks.
			h m		° ′		′	° ′	° ′	
Oct. 29.	At anchor.		6 A.M.	Direct.	−70 46·5	S.E.	−31	−71 17	−70 45	
				S.	−70 44·6					
				Direct.	−71 12·8	E.S.E.	− 3	−71 16		
				S.	−71 12·8					
Nov. 13.	−44 16	149 29	1 15 P.M.	Direct.	−71 03·1	E.S.E.	− 3	−71 09	−70 41	
			to	S.	−71 05·8					
			2 15 P.M.	N.	−71 10·6					
14.	−45 13	151 57	10 40 A.M.	Direct.	−71 42·7	S.E.	−33	−72 17	−71 49	
			to	S.	−71 47·0					
			11 25 A.M.	N.	−71 43·5					
15.	−45 33	152 45	11 20 A.M.	Direct.	−72 26·0	E.	+23	−72 05	−71 37	
			to	S.	−72 18·3					
			Noon.	N.	−72 39·0					
16.	−46 18	154 30	1 30 P.M.	Direct.	−72 22·5	E.S.E.	− 5	−72 32	−72 04	
			to	S.	−72 21·2					
			2 20 P.M.	N.	−72 37·1					
17.	−47 46	157 40	10 45 A.M.	Direct.	−73 20·2	S.E. by E. ½ E.	−14	−73 42	−73 14	
			to	S.	−73 24·7					
			11 45 A.M.	N.	−73 37·7					
18.	−49 20	160 13	11 15 A.M.	Direct.	−74 22·7	S.E. by E. ½ E.	−15	−74 43	−74 15	
			to	S.	−74 41·0					
			Noon.	N.	−74 21·8					
19.	−50 28	164 9	11 20 A.M.	Direct.	−75 16·8	E.	+22	−74 51	−74 23	
			to	S.	−75 12·5					
			Noon.	N.	−75 11·0					
21.	Auckland Island.		1 15 P.M.	Direct.	−74 25·5	W.N.W.	+47	−73 49	−73 21	
	−50 33	166 19	to	S.	−74 19·5					
			4 P.M.	N.	−75 02·5					
				Direct.	−74 33·6	N.W. by W.	+59	−73 35	−73 07	
24.			11 30 A.M.	Direct.	−75 05·1	(Record omitted.)				
			to	S.	−75 03·6					
			0 30 P.M.	N.	−74 49·6					
	At the Magnetic Observatory.		2 00 P.M.	Direct.	−73 40·8	Observed on shore.	.....	−73 41·3	−73 13·3	Mean of needles whose poles were inverted −73° 10′.
			to	S.	−73 39·8					
			5 30 P.M.	N.	−73 43·3					
26.	Pig Island.		9 00 A.M.	Direct.	−73 38·4	Observed on shore.	.....	−73 36·3	−73 08·3	
			to	S.	−73 33·3					
	−50 32	166 12	10 00 A.M.	N.	−73 34·4					
				Direct.	−73 39·1					
	Shoe Island.		1 30 P.M.	Direct.	−77 27·5	Observed on shore.	.....	−77 31	−77 03	Excessive local attraction.
			to	S.	−77 33·1					
			2 30 P.M.	N.	−77 31·3					
	200 yards west of the preceding station.		.....	Direct.	−74 10·6	Observed on shore.	.....	−74 11	−73 43	

Observations of Inclination. (Continued.)

1840.	Position. Lat.	Position. Long.	Time of day.	Method employed.	Observed Inclination. Face east.	Ship's head.	Correction for ship's attraction.	Mean Inclination. Face east.	True Inclination.	Remarks.
	° ′	° ′	h m		° ′		′	° ′	° ′	
Nov. 26.	At anchor.		6 00 to 6 40 P.M.	Direct.	−72 42·8	S.S.W.	−58	−73 43	−73 15	
				S.	−72 48·0					
			6 45 P.M.	Direct.	−73 40·4	W.S.W.	− 6	−73 43	−73 15	
				S.	−73 34·7					
30.	Auckland Island, Ocean Point.		7 45 A.M.	Direct.	−73 29·1	Observed on shore.	.....	−73 28	−73 00	
				S.	−73 26·0					
	Sandy Bay.		2 00 P.M.	Direct.	−73 58·2		.....	−73 54	−73 26	
				S.	−73 50·4					
	155 yards east of the preceding station.		2 30 P.M.	Direct.	−73 56·6		.....	−73 54	−73 26	
				S.	−73 53·2					
				N.	−73 51·9					
Dec. 2.	Auckland Island.		1 20 P.M. to 2 30 P.M.	Direct.	−65 39·5	Observed on shore.	.....	−65 30	−65 02	Excessive local attraction.
				S.	−65 28·0					
				N.	−65 13·0					
				Direct.	−65 38·0					
6.	At anchor.		7 15 A.M.	Direct.	−73 03.4	S.W.	−37	−73 41	−73 13	
				S.	−73 04·7					
			8 30 A.M.	Direct.	−72 46·5	S.S.W.	−59	−73 44	−73 16	
				S.	−72 44·6					
7.			11 00 A.M.	Direct.	−74 12·2	W. by S.	+ 8	−74 05	−73 37	
				S.	−74 13·6					
8			9 00 A.M.	Direct.	−72 30·5	S.	−67	−73 35	−73 07	
				S.	−72 25·1					
				Direct.	−72 33·0	S.S.E.	−59	−73 32	−73 04	
				S.	−72 32·5					
				Direct.	−73 10·2	S.E.	−37	−73 43	−73 15	
				S.	−73 01·8					
				Direct.	−73 27·5	E.S.E.	− 7	−73 37	−73 09	
				S.	−73 33·0					
				Direct.	−73 58·0	E.	+22	−73 32	−73 04	
				S.	−73 49·8					
				Direct.	−74 10·6	E.N.E.	+47	−73 25	−72 57	
				S.	−74 12·8					
				Direct.	−74 39·0	N.E.	+66	−73 35	−73 07	
				S.	−74 42·5					
				Direct.	−74 33·2	N.N.E.	+76	−73 21	−72 53	
				S.	−74 41·1					
				Direct.	−74 51·0	N.	+79	−73 33	−73 05	
				S.	−74 53·3					
				Direct.	−75 01·5	N.N.W.	+76	−73 46	−73 18	
				S.	−75 02·3					
				Direct.	−74 48·5	N.W.	+66	−73 38	−73 10	
				S.	−74 39·2					
				Direct.	−73 10·7	S.E.	−37	−73 48	−73 20	
12.				Direct.	−73 55·8	E. by N.	+36	−73 20	−72 52	
				Direct.	−73 37·4	E.	+22	−73 15	−72 47	
				Direct.	−74 30·0	N.E.	+66	−73 24	−72 56	
				Direct.	−74 09·4	N.E. by E.	+59	−73 10	−72 42	
				Direct.	−74 04·9	E.N.E.	+47	−73 18	−72 50	
				Direct.	−73 24·3	E. by S.	+ 7	−73 17	−72 49	
				Direct.	−73 21·3	E.S.E.	− 7	−73 28	−73 00	
				Direct.	−73 02·2	S.E. by E.	−22	−73 24	−72 56	

Observations of Inclination. (Continued.)

1840.	Position. Lat.	Position. Long.	Time of day.	Method employed.	Observed Inclination. Face east.	Ship's head.	Correction for ship's attraction.	Mean Inclination. Face east.	True Inclination.	Remarks.
	° ′	° ′	h m		° ′		′	° ′	° ′	
Dec. 14.	Campbell Island.		10 00 A.M.	Direct.	−75 42·8	N.W.	+67	−74 38	−74 10	
	−52 34	169 10		S.	−75 48·3					
	At anchor.		11 00 A.M.	Direct.	−74 53·7	W.	+22	−74 36	−74 08	
				S.	−75 02·4					
			1 00 P.M.	Direct.	−73 18·4	S.S.W.	−60	−74 16	−73 48	
				S.	−73 13·1					
			2 00 P.M.	Direct.	−73 44·5					
			to	S.	−74 29·7	Observed on shore.	.....	−74 18	−73 50	· Mean on shore −73 52·5. Mean on board −73 30.
			4 15 P.M.	N.	−74 27·8					
				Direct.	−74 30·2					
15.	At the Magnetic Observatory.		6 15 A.M.	Direct.	−74 24·5					
			to	S.	−74 24·4	Observed on shore.	.....	−74 23	−73 55	
			8 30 A.M.	N.	−74 18·5					
				Direct.	−74 23·1					
16.	At Anchor.		1 00 P.M.	Direct.	−73 18·4	S.S.W.	−60	−74 16	−73 48	
				S.	−73 13·1					
17.	Running out of Harbour.		9 30 A.M.	Direct.	−73 42·1	E. by S.	+ 7	−73 35	−73 07	
				Direct.	−73 16·0	S.	−69	−74 25	−73 57	
18.	−53 47	169 02	4 30 A.M.	Direct.	−74 21·0	S.S.E.	−61	−75 28	−74 46	Uncertain. Very much motion.
				S.	−74 33·8					
	−54 25	169 16	5 00 P.M.	Direct.	−73 39·9	S.S.E. ½ E.	−57	−75 00		
				N.	−74 27·0					
19.	−55 50	170 6	10 15 A.M.	Direct.	−75 26·1					
			to	N.	−75 40·5	S. by W.	−71	−76 44	−76 16	
			11 10 A.M.	S.	−75 32·5					
21.	−57 15	170 40	4 20 A.M.	Direct.	−77 14·0					Ship pitching.
				N.	−77 01·2	S.S.E.	−67	−78 11	−77 43	
				N.S.	−76 58·0					
	−57 54	170 25	5 10 P.M.	Direct.	−77 15·0					
			to	N.	−77 00·5	S. by E.	−74	−78 19	−77 51	
			5 50 P M.	N.S.	−77 00·1					
22.	−58 57	170 57	10 15 A.M.	Direct.	−77 24·2					
			to	S.	−77 19·0					
			11 10 A.M.	N.	−77 10·8	S.	−77	−78 32	−78 04	
				N.S.	−77 05·2					
23.	−59 41	169 38	10 15 A.M.	Direct.	−78 05·0			−79 14		
			to	S.	−78 08·5			−79 17		
			11 20 A.M.	N.	−78 06·7	S.S.W.	−69	−79 16	−78 34	
				N.S.	−77 59·0			−79 08		
	−59 48	169 42	6 40 P.M.	Direct.	−78 57·8	E.	+20	−78 38		
				N.S.	−78 59·0			−78 39		
24.	−60 14	170 15	5 00 A.M.	Direct.	−78 27·3			−79 19		
			to	N.	−78 13·4	S.E. ½ S.	−52	−79 05		
			6 00 A.M.	N.S.	−78 24·0			−79 16		
			11 00 A.M.	Direct.	−78 05·5			−79 15	−78 53	
			to	S.	−78 47·2			−79 57		
	−60 31	170 32	Noon.	N.	−78 13·6	S.S.E.	−70	−79 24		
				N.S.	−78 01·0			−79 11		

Observations of Inclination. (Continued.)

1840.	Position. Lat.	Position. Long.	Time of day.	Method employed.	Observed Inclination. Face east.	Ship's head.	Correction for ship's attraction.	Mean Inclination. Face east.	True Inclination.	Remarks.
			h m		° ′		′	° ′	° ′	
Dec. 24.	−60 46	170 44	5 15 P.M. to 6 10 P.M.	Direct.	−78 40·4	S.E. by S.	−59	−79 34	−79 06	
				S.	−78 37·5					
				N.	−78 45·8					
				N.S.	−78 16·3					
25.	−61 34	170 40	2 15 A.M. to 3 15 A.M.	Direct.	−78 43·4	S.	−79	−79 58	−79 30	
				N.	−78 40·1					
				N.S.	−78 32·9					
26.	−62 04	172 48	Noon.	Direct.	−81 29·2	N.	+88	−80 01	−79 41	
				?	−81 25·0			−79 57		
				?	−81 27·2			−79 59		
	−62 10	173 00	7 P.M.	Direct.	−79 28·3	S.S.W.	−71	−80 39		
27.	−62 40	173 40	10 30 A.M.	Direct.	−80 53·3	W. ½ N.	+27	−80 26	−79 58	
28.	−62 40	174 40	10 30 A.M. to 11 45 A.M.	Direct.	−79 26·4	S.	−80	−80 37	−80 09	
				S.	−79 21·4					
				N.	−79 18·4					
				N.S.	−78 32·7					
	−62 52	174 28	3 00 P.M.	Direct.	−79 37·2					
				N.S.	−79 22·8					
29.	−64 00	172 44	8 40 A.M. to 10 20 A.M.	Direct.	−80 25·0	S.S.W. ½ W.	−67	−81 31	−81 03	
				S.	−80 24·1					
				N.	−80 28·2					
				N.S.	−80 18·8					
	−64 06	172 38	10 30 A.M. to 11 45 A.M.	Direct.	−80 28·1	S.S.W.	−73	−81 41	−81 03	
				S.	−80 16·8			−81 30		
				N.	−80 20·5	S. by W.	−80	−81 41		
				N.S.	−79 47·8			−81 08		
				Direct.	−80 17·3			−81 37		
30.	−64 30	172 51	6 45 A.M.	Direct.	−80 23·9	S.W. by S.	−61	−81 25		
				N.S.	−80 16·2			−81 17		
	−64 31	173 00	10 45 A.M. to 11 45 A.M.	Direct.	−80 16·3	S.	−82	−81 38	−81 11	
				S.	−80 14·4			−81 36		
				N.	−80 17·9			−81 40		
				N.S.	−80 54·3			−82 16		
31.	−65 58	171 47	10 45 A.M. to 11 50 A.M.	Direct.	−81 23·8	S.	−84	−82 48	−82 20	
				S.	−81 25·6			−82 50		
				N.	−81 29·3			−82 53		
				N.S.	−81 18·2			−82 42		
	−66 17	170 57	3 45 P.M. to 4 40 P.M.	Direct.	−81 25·0	S. by W. ½ W.	−77	−82 42	−82 25	
				S.	−81 23·9			−82 41		
				N.	−81 34·7			−82 52		
				N.S.	−81 49·4			−83 06		
1841. Jan. 1.	−66 30	169 13	10 00 A.M.	Direct.	−81 36·4	S.	−85	−83 08	−82 40	
				S.	−81 39·0					
				N.	−81 49·6					
				N.S.	−81 49·2					

Observations of Inclination. (Continued.)

1841.	Position. Lat.	Position. Long.	Time of day.	Method employed.	Observed Inclination. Face east.	Ship's head.	Correction for ship's attraction.	Mean Inclination. Face east.	True Inclination.	Remarks.
			h m		° ′		′	° ′	° ′	
Jan. 1.	−66 32	169 45	11 25 A.M.	Direct.	−84 14·6					
			to	S.	−84 31·7					
			0 30 P.M.	N.	−84 41·1	N.	+91	−82 59	−82 31*	
				N.S.	−84 32·9					
2.	−66 23	170 12	10 40 A.M.	Direct.	−84 16·3					
			to	S.	−85 01·6					
			11 45 A.M.	N.	−85 05·6	N.N.W. ½ W.	+82	−83 21	−82 53	
				N.S.	−84 29·6					
3.	−65 39	170 44	11 00 A.M.	Direct.	−83 28·7					Much motion.
			to	S.	−83 46·0					
			Noon.	N.	−83 58·0	N.N.W.	+86	−82 19	−81 51	
				N.S.	−83 46·5					
4.	−65 22	172 40	10 15 A.M.	Direct.	−82 18·3					Much motion.
			to	S.	−82 06·0					
			11 40 A.M.	N.	−82 19·0	E. ½ S.	+ 9	−82 11	−81 43	
				N.S.	−82 39·1					
5.	−66 55	174 31	10 30 A.M.	Direct.	−82 03·7	S.E. by E.	−34	−82 38		Sailing amongst loose ice.
				Direct.	−82 19·9	E.S.E.	−16	−82 36	−82 13	
				Direct.	−82 06·1	S.E. ½ E.	−42	−82 48		
	−67 27	174 51	7 10 P.M.	Direct.	−83 03·6					Sailing in the pack.
			to	S.	−83 11·3					
			7 50 P.M.	N.	−83 09·2	E.S.E.	−16	−83 26	−82 58	
				N.S.	−83 15·5					
6.	−68 17	175 0	11 00 A.M.	Direct.	−83 40·0	E.S.E.	−17	−83 57		Sailing in the pack.
				S.	−83 35·0	E.S.E.	−17	−83 52		
				Direct.	−82 23·1	S.E. by S.	−63	−83 26	−83 12	
				Direct.	−82 35·4	S.E.	−50	−83 25		
				Direct.	−82 26·1	S.S.E.	−75	−83 41		
7.	−68 32	175 49	9 30 A.M.	Direct.	−84 04·4					Standing off and on in a pool of water in the pack. Smooth water.
			to	S.	−84 10·3	E.	+18	−83 53		
			10 15 A.M.	N.	−84 19·6					
			to	Direct.	−84 10·8				−83 28	
			11 00 A.M.	S.	−84 18·1	W.	+18	−83 59		
				N.	−84 22·3					
8.	−68 28	176 31	11 00 A.M.	Direct.	−83 35·2	W. by S. ½ S.	− 8	−83 43		
			to	S.	−83 57·7			−84 06		
			Noon.	N.	−84 03·5			−83 46	−83 17	
				N.S.	−84 03·2	W.	+18	−83 45		
				Direct.	−83 43·2			−83 25		
	On ice.		1 20 P.M.	Direct.	−84 01·2					The ice was slightly in motion.
	−68 28	176 32	to	S.	−84 06·8	Observed on ice.	.....	−84 02·9	−83 34·9	
			2 00 P.M.	N.	−84 09·3					
				N.S.	−83 55·7					
			3 00 P.M.	Direct.	−84 01·5					

* The accordance of the results on the 1st of January with the ship's head on the north and south points, is extremely satisfactory with reference to the corrections, which on those points are very large and have opposite signs.

Observations of Inclination. (Continued.)

1841.	Position. Lat.	Position. Long.	Time of day.	Method employed.	Observed Inclination. Face east.	Ship's head.	Correction for ship's attraction.	Mean Inclination. Face east.	True Inclination.	Remarks.
			h m		° ′		′	° ′	° ′	
Jan. 9.	−68° 48′	176° 25′	2 45 A.M.	Direct.	−82 41·8					
			to	S.	−82 41·4					
			4 00 A.M.	N.	−82 48·6	S.S.E.	−76	−84 08	−83 40	
				N.S.	−82 57·0					
	−69 15	176 14	11 40 A.M.	Direct.	−83 09·4					
10.	−70 23	174 50	10 35 A.M.	Direct.	−84 01·8					
				S.	−83 51·4					
			to	N.	−84 16·2	S.	−88	−85 28	−85 00	
			11 40 A.M.	N.S.	−83 52·5					
11.	−71 15	171 15	9 30 A.M.	Direct.	−84 48·4					
			to	S.	−84 48·5					
			11 00 A.M.	N.	−84 49·3	S.	−89	−86 18	−85 50	
				N.S.	−84 49·3					
	−71 24	170 44	4 40 P.M.	Direct.	−84 55·4					
			to	S.	−84 56·9					
			5 50 P.M.	N.	−84 56·2	S. by W.	−86	−86 21	−85 53	
				N.S.	−84 51·4					
12.	−71 47	170 52	10 46 A.M.	Direct.	−86 17·8					
			to	S.	−86 29·5					
			11 40 A.M.	N.	−86 25·2	W.S.W.	−14	−86 38	−86 10	
13.	−72 07	172 19	10 15 A.M.	Direct.	−87 14·7					
			to	S.	−87 44·5					
			11 40 A.M.	N.	−87 32·6	E. by N. ½ N.	+46	−86 41	−86 13	
				N.S.	−87 17·6					
14.	−71 51	172 40		Direct.	−87 04·5	E. by N. ½ N.	+46	−86 18	−85 53	
15.	−71 54	171 37	9 00 A.M.	Direct.	−85 03·8	S.S.W.	−79	−86 23		
	−71 55	171 51	11 00 A.M.	Direct.	−86 43·2					
			to	S.	−87 10·4					
			Noon.	N.	−86 43·7	E.	+23	−86 23	−85 55	
				N.S.	−86 26·2					
16.	−72 12	172 13	9 15 A.M.	Direct.	−85 48·2					
			to	S.	−85 40·3					
			11 00 A.M.	N.	−85 48·5	S. by W.	−87	−87 09	−86 41	
				N.S.	−85 32·2					
17.	−72 09	173 35	7 30 A.M.	Direct.	−86 53·3					
			to	N.	−86 50·2	E.	+24	−86 31	−86 03	
			8 30 A.M.	N.S.	−87 01·0					
18.	−72 57	176 06	11 00 A.M.	Direct.	−86 03·5	S.E. by E.	−33	−86 37		
				S.	−86 32·2			−87 05		
				N.	−86 32·3	E.S.E.	−14	−86 46	−86 11	
				N.S.	−86 04·0			−86 18		
				Direct.	−86 22·9	E. by S. ½ S.	− 4	−86 27		
19.	−72 35	173 34	10 00 A.M.	Direct.	−86 12·4					
			to	S.	−86 21·8					
			11 00 A.M.	N.	−86 22·2	S.W. by W.	−33	−87 04	−86 36	
				N.S.	−87 07·0					

Much motion; observations indifferent.

Much motion.

Much motion.

Observations of Inclination. (Continued.)

1841.	Position. Lat.	Position. Long.	Time of day.	Method employed.	Observed Inclination. Face east.	Ship's head.	Correction for ship's attraction.	Mean Inclination. Face east.	True Inclination.	Remarks.
			h m		° ′		′	° ′	° ′	
Jan. 19.	−72 31	173 39	4 30 P.M.	Direct.	−85 58·4					
			to	S.	−85 55·5					
			5 30 P.M.	N.	−86 04·1	S. by E. ½ E.	−83	−87 19	−86 51	
				N.S.	−85 45·8					
20.	−73 47	171 50	10 00 A.M.	Direct.	−86 56·7			−87 48		
			to	S.	−86 59·8			−87 51		
			11 15 A.M.	N.	−86 58·4	S.E.	−51	−87 49		
				N.S.	−86 59·1			−87 50	−87 04	
	−73 50	171 43	7 00 P.M.	Direct.	−86 49·0	S.W.	−51	−87 40		
			7 30 P.M.	Direct.	−86 04·7	S.W. by W.	−34	−86 39		
			7 50 P.M.	Direct.	−87 45·0	E. by N.	+39	−87 06		
21.	−74 10	170 28	0 30 A.M.	Direct.	−86 39·6			−88 07		
			to	S.	−86 37·4			−88 04		
			1 30 A.M.	N.	−86 38·5	S. by E.	−87	−88 06		
				N.S.	−86 30·5			−87 57		
	−74 06	171 20	4 00 A.M.	Direct.	−87 48·1	E.	+24	−87 24	−87 12	
	−74 00	170 43	10 40 A.M.	Direct.	−88 04·7	N.E. by E.	+66	−86 59		
			11 00 A.M.	Direct.	−88 46·3	N.E. by N.	+85	−87 21		
			11 40 A.M.	Direct.	−88 51·2	N.N.E.	+90	−87 21		
	−73 56	170 51	3 10 P.M.	Direct.	−88 40·4					
			to	S.	−88 57·1					
			4 20 P.M.	N.	−88 57·5	N. by E.	+91	−87 22		
				N.S.	−88 58·2				−87 11	
22.	−73 56	172 20	11 25 A.M.	Direct.	−86 26·1					Very unsteady.
			to	S.	−86 32·3					
			0 15 P.M.	N.	−86 34·2	S. by E.	−87	−87 56	.....	
				N.S.	−86 21·7					
23.	−74 23	175 35	Noon.	Direct.	−86 59·0	E. by S.	+ 6	−86 53		
24.	−74 35	173 01	11 20 A.M.	Direct.	−86 36·8					
			to	N.	−86 23·0	S. by E.	−87	−87 59		
			11 50 A.M.	N.S.	−86 35·2				−87 29	
	−74 36	173 01	11 20 P.M.	Direct.	−86 49·9					
			to	S.	−86 41·4	S. ½ W.	−88	−88 16		
			0 20 A.M.	N.	−86 54·3					
25.	−74 38	170 09		N.S.	−86 39·7	S. ½ W.	−88	−88 08		
	−74 44	169 43	10 00 A.M.	Direct.	−88 12·4			−87 48		
			to	S.	−88 21·0			−87 57	−87 25	
			11 15 A.M.	N.	−88 17·0	E.	+24	−87 53		
				N.S.	−88 05·0			−87 41		
	−74 47	168 22	6 P.M.	Direct.	−87 24·7	S. by W. ½ W.	−85	−88 50		
				Direct.	−87 35·7	S.W. by S.	−68	−88 44	−88 18	
	−74 44	168 23	7 20 P.M.	Direct.	−87 34·0	S.S.W. ½ W.	−74	−88 48		
				Direct.	−87 49·2	S.W.	−52	−88 41		
26.	−74 54	169 00	5 45 A.M.	Direct.	−87 34·7	S. ½ E.	−89	−89 04		
			7 45 A.M.	Direct.	−87 46·4	S.W. by S.	−68	−88 54	−88 21	
	−74 58	169 02	8 20 A.M.	Direct.	−88 37·3	E. by S.	+ 7	−88 30		
27.	−75 22	168 48	2 20 A.M.	Direct.	−87 45·2					
			to	S.	−87 45·2					
			4 10 A.M.	N.	−87 45·6	S.S.E.	−84	−89 04	−88 36	
				N.S.	−87 23·3					

Observations of Inclination. (Continued.)

1841.	Position. Lat.	Position. Long.	Time of day.	Method employed.	Observed Inclination. Face east.	Ship's head.	Correction for ship's attraction.	Mean Inclination. Face east.	True Inclination.	Remarks.
			h m		° ′		′	° ′	° ′ ′	
Jan. 27.	−76 06	168 11	4 20 P.M.	Direct.	−88 05·4	S.E.	−52	−88 55	−88 27	
			to	S.	−88 06·1					
			5 20 P.M.	N.	−88 02·2					
				N.S.	−87 59·0					
28.	−76 46	169 22	11 15 A.M.	Direct.	−88 39·6	E.S.E.	−12	−88 52	−88 00	
	−77 29	170 30	7 00 P.M.	Direct.	−89 32·4	N.W. by N.	+85	−88 05		
29.	−77 47	175 43	6 00 A.M.	Direct.	−88 44·7	N. by W.	+91	−87 16	−86 48	
				S.	−88 54·6					
				N.	−88 50·2					
				N.S.	−88 36·7					
30.	−77 47	180 28	3 10 A.M.	Direct.	−87 51·4	N.N.W.	+88	−86 23	−85 54	Much motion.
	−77 35	181 20	Noon.	Direct.	−87 43·9	N.W. by N.	+83	−86 21		
31.	−77 04	188 18	9 30 A.M.	Direct.	−87 30·3	N.E. by N.	+83	−86 07	−85 56	
			to	S.	−87 36·4			−86 13		
	−77 06	189 06	11 30 A.M.	N.	−87 26·0			−86 03		
				N.S.	−88 07·6			−86 45		
	−77 12	190 54	7 00 P.M.	Direct.	−85 28·8	S. by E. ¼ E.	−82	−86 51		
Feb. 1.	−77 04	188 30	10 30 A.M.	Direct.	−85 45·9	S.E.	−51	−86 37	−86 12	
			to	S.	−85 56·7			−86 48		
			11 30 A.M.	N.	−85 52·5			−86 43		
				N.S.	−85 47·4			−86 38		
	−77 11	189 01	7 45 A.M.	Direct.	−86 02·5	S.W. by W.	−33	−86 36		
	−77 9	188 15	5 10 P.M.	Direct.	−85 59·2	S.E. by S.	−66	−86 51	−86 23	
			to	N.	−85 52·4					
			8 15 P.M.	N.S.	−85 36·3					
				Direct.	−85 30·9					
2.	−77 45	187 00	11 35 A.M.	Direct.	−86 27·2	E.	+23	−86 04	−86 10	
			to	Direct.	−85 46·9	S.E.	−51	−86 38		
			Noon.	Direct.	−85 37·5	S.E. by S.	−66	−86 43		
	−77 56	186 35	10 P.M.	Direct.	−85 43·0	S.W. by S.	−66	−86 49		
			10 30 P.M.	Direct.	−85 34·4	S. by W. ½ W.	−83	−86 57		
3.	−77 17	185 26	10 00 A.M.	Direct.	−86 57·4	W.S.W.	−14	−87 17	−86 49	
			to	S.	−87 02·3					
			11 15 A.M.	N.	−87 04·4					
				N.S.	−87 07·0					
4.	−77 00	192 18	9 30 A.M.	Direct.	−86 52·8	E.N.E.	+53	−86 00	−85 36	
				Direct.	−86 43·5	E. by N.	+39	−86 04		
				S.	−86 30·3			−85 51		
				N.	−86 35·3			−85 56		
				?	−85 03·8	S. by E.	−86	−86 30		
	−77 06	192 34	2 00 P.M.	Direct.	−86 29·5	E.N.E.	+52	−85 54	−85 26	
			to	Direct.	−86 50·6					
	−77 08	192 19	4 00 P.M.	S.	−86 49·0					
				N.	−86 54·0					
5.	−77 24	192 56	3 00 A.M.	Direct.	−86 27·2	E.	+23	−86 13	−85 45	
			to	S.	−86 36·0					
			4 00 A.M.	N.	−86 34·7					
				N.S.	−86 46·5					

Observations of Inclination. (Continued.)

1841.	Position. Lat.	Position. Long.	Time of day.	Method employed.	Observed Inclination. Face east.	Ship's head.	Correction for ship's attraction.	Mean Inclination. Face east.	True Inclination.	Remarks.
			h m		° ′		′	° ′	° ′	
Feb. 5.	−77 10	192 48	11 45 A.M.	Direct.	−85 00·4					
			2 30 P.M.	Direct.	−84 57·2					
			to	S.	−84 53·1	S.	−89	−86 34	−86 06	
			4 00 P.M.	N.	−85 26·3					
				N.S.	−85 09·9					
6.	−77 9	188 50	9 00 A.M.	Direct.	−86 52·2			−85 59		
			to	S.	−87 03·0			−86 10		
			10 45 A.M.	N.	−87 14·4	E.N.E.	+53	−86 21	−85 54	
				N.S.	−87 29·8			−86 37		
				Direct.	−85 03·5	S.	−89	−86 33		
	−77 12	188 08	10 55 A.M.	Direct.	−85 12·1	S.S.W.	−79	−86 31		
7.	−76 58	186 40	6 00 A.M.	Direct.	−85 27·6			−86 54		
			to	S.	−85 38·6			−87 05		
			7 15 A.M.	N.	−85 35·8	S. by W.	−86	−87 02	−86 23	
				N.S.	−85 29·3			−86 55		
	−77 01	186 35	11 30 A.M.	Direct.	−86 05·1	E.S.E.	−14	−86 19		
8.	−77 40	187 05	11 40 A.M.	Direct.	−87 02·5	E.N.E.	+53	−86 10		
			1 30 P.M.	Direct.	−87 10·6			−86 12		
			to	S.	−87 04·5			−86 06	−85 51	
	−77 47	187 18	3 45 P.M.	N.	−87 29·6	N.E. by E. $\frac{1}{2}$ E.	+59	−86 31		
				N.S.	−87 35·1			−86 36		
9.	−77 54	190 10	10 35 A.M.	Direct.	−87 16·3	N.E.	+75	−86 01	−85 49	
	−77 56	187 59	0 20 P.M.	Direct.	−85 27·9	S.E. by S.	−66	−86 34		
10.	−77 39	187 06	5 45 A.M.	Direct.	−85 15·1			−86 41		
			to	S.	−85 26·8			−86 53		
			8 00 A.M.	N.	−85 34·4	S. by E.	−86	−87 00	−86 19	
				N.S.	−85 24·6			−86 50		
	−77 32	186 38	11 40 A.M.	Direct.	−86 33·7	W. by S.	+ 5	−86 29		
11.	−76 55	188 40	2 50 A.M.	Direct.	−87 16·6	N.W.	+75	−86 02		
	−76 11	187 53	11 40 A.M.	Direct.	−85 55·0	S.W.	−51	−86 46	−86 07	
			1 00 P.M.	Direct.	−85 29·3	S.S.W. $\frac{1}{2}$ W.	−73	−86 42		
				S.	−85 39·4			−86 52		
12.	−76 50	183 26	10 15 A.M.	Direct.	−86 04·0					Much motion.
			to	N.	−86 39·8	S.E. by E.	−33	−86 51	−86 23	
			11 40 A.M.	N.S.	−86 09·0					
14.	−76 16	174 14	3 A.M.	Direct.	−86 15·5					
	−76 22	176 9	11 40 A.M.	Direct.	−86 20·8					
	−76 16	175 50	2 00 P.M.	Direct.	−86 23·3					
				S.	−86 23·6	S.S.W.	−79	−87 43	−87 15	
				N.	−86 30·7					
				N.S.	−86 30·3					
	−76 14	172 35	11 20 P.M.	Direct.	−86 34·0	S.	−90	−88 04	−87 36	
15.	−76 03	169 30	11 20 A.M.	Direct.	−87 05·3			−88 36		
			to	N.	−87 13·5	S.	−91	−88 44		
			Noon.	N.S.	−87 03·1			−88 34		
	−76 03	167 58	4 40 P.M.	Direct.	−87 30·1			−88 51	−88 21	
	−76 09	167 00	7 10 P.M.	Direct.	−87 35·3			−88 56		
	−76 10	166 50	9 00 P.M.	Direct.	−87 36·4	S.S.E.	−81	−88 57		
	−76 12	166 30	11 00 P.M.	Direct.	−87 42·0			−89 03		

Observations of Inclination. (Continued.)

1841.	Position. Lat.	Position. Long.	Time of day.	Method employed.	Observed Inclination. Face east.	Ship's head.	Correction for ship's attraction.	Mean Inclination. Face east.	True Inclination.	Remarks.
			h m		° ′		′	° ′	° ′	
Feb. 16.	−76 20	165 32	6 00 A.M.	Direct.	−87 42·8	S.S.E.	−81	−89 04	−88 35	
			to	S.	−87 49·1			−89 10		
			8 00 A.M.	N.	−87 37·8			−88 59		
				N.S.	−87 37·3			−88 58		
17.	−76 46	165 2	3 20 A.M.	Direct.	−88 33·2	E.S.E.	−13	−88 46		
			4 15 A.M.	Direct.	−87 51·2	S.S.W.	−81	−89 12		
	−76 31	165 04	11 45 A.M.	Direct.	−87 05·3	S.	−91	−88 36	−88 19	
	−76 26	164 02	4 00 P.M.	Direct.	−87 13·3			−88 44		
			5 00 P.M.	Direct.	−89 34·3	N.E. by E. ½ E.	+58	−88 36		
18.	−76 05	166 11	11 40 A.M.	Direct.	−89 26·5	W.	+26	−89 00		
	−75 49	167 32	8 15 P.M.	Direct.	−88 10·1			−87 44		
19.	−75 03	168 44	11 00 A.M.	Direct.	−87 21·0	S.W.	−52	−88 13	−87 53	
			to	S.	−87 35·0			−88 27		
			Noon.	N.	−87 44·2			−88 36		
				N.S.	−87 15·9			−88 08		
20.	−73 09	171 26	Noon.	Direct.	−87 02·5	S.W.	−51	−87 54		Much motion.
21.	−71 17	170 43	9 00 A.M.	Direct.	−86 01·8	S.W. by W. ½ W.	−27	−86 26	−86 23	
			to	S.	−86 03·6			−86 28		
			10 15 A.M.	N.	−86 10·7			−86 35		
	−71 04	170 07	10 50 A.M.	Direct.	−86 31·9	W.	+24	−86 08	−85 53	
	−70 52	168 11	6 40 P.M.	Direct.	−86 15·4	W.S.W.	−14	−86 29		
	−70 48	167 52	8 15 P.M.	Direct.	−86 30·4	W. by S.	+ 5	−86 25		
22.	−70 41	167 20	6 40 A.M.	Direct.	−87 28·0	N.N.E.	+88	−86 19	−85 51	A great deal of motion.
			to	S.	−87 57·8					
			7 30 A.M.	N.	−87 51·4					
				N.S.	−87 51·3					
	−70 27	166 40	5 00 P.M.	Direct.	−87 02·2	E. by N.	+39	−86 23		
23.	−70 18	167 28	11 40 A.M.	Direct.	−87 31·9	N.E. ½ E.	+70	−86 22		
24.	−70 14	167 34	10 00 A.M.	Direct.	−85 50·4	S.S.W. ½ W.	−73	−87 03	−86 19	
			to	S.	−85 45·8			−86 59		
			11 50 A.M.	N.	−85 42·7			−86 56		
				N.S.	−85 50·0			−87 03		
25.	−70 14	167 16	6 30 A.M.	Direct.	−85 20·7	S.	−89	−86 50	−86 06	Much motion.
			to	S.	−85 04·7			−86 34		
			8 00 A.M.	N.	−84 49·2			−86 18		
	−70 02	167 35	5 00 P.M.	Direct.	−87 25·3	N.W.	+75	−86 10	−85 41	
26.	−69 52	168 09	11 30 A.M.	Direct.	−85 54·7	W.S.W.	−14	−86 09		
27.	−69 24	167 55	10 30 A.M.	Direct.	−85 13·1	S.E.	−51	−86 04	−85 28	
			to	N.	−85 18·8			−86 10		
			Noon.	N.S.	−85 03·9			−85 55		
				Direct.	−85 34·1	E.S.E.	−14	−85 48		
				Direct.	−86 56·0	N.W.	+75	−85 41		
28.	−69 40	167 48	6 00 A.M.	Direct.	−85 03·2	S. by E.	−86	−86 29	−85 54	
			to	N.	−85 20·6			−86 47		
			8 00 A.M.	N.S.	−84 47·6			−86 14		
	−69 56	167 36	Noon.	Direct.	−85 14·4	S. by E.	−86	−86 40		
				Direct.	−86 45·6	N.W. by W.	+64	−85 42		

Observations of Inclination. (Continued.)

1841.	Position. Lat.	Position. Long.	Time of day.	Method employed.	Observed Inclination. Face east.	Ship's head.	Correction for ship's attraction.	Mean Inclination. Face east.	True Inclination.	Remarks.
			h m		° ′		′	° ′	° ′	
Mar. 1.	−69 04	167 41	11 30 A.M.	Direct.	−86 51·5	N.W. by W.	+64	−85 48	−85 26	Much motion.
	−69 06	167 42	2 00 P.M.	Direct.	−86 28·5			−85 25		
			2 30 P.M.	N.	−87 40·5			−86 37		
	−69 08	167 44	3 00 P.M.	N.S.	−87 07·0			−86 03		
			3 30 P.M.	Direct.	−86 49·5	N.W.	+74	−85 36		
2.	−68 28	168 10	9 30 A.M.	Direct.	−86 12·0	W. by N.	+38	−85 34	−85 07	
				S.	−86 12·1			−85 34		
				N.	−86 10·2			−85 32		
				N.S.	−86 32·4			−85 54		
			11 15 A.M.	Direct.	−86 24·0	N.W. by W.	+64	−85 20		
3.	−67 52	167 28	6 15 A.M.	Direct.	−85 01·8	W.	+21	−84 41	−84 28	
				S.	−85 19·2			−84 58		
				N.	−85 38·5			−85 17		
	−67 47	167 23	7 45 A.M.	N.S.	−85 32·1			−85 11		
	−67 32	167 02	11 45 A.M.	Direct.	−84 55·5			−84 35		
4.	−66 44	165 45	11 40 A.M.	Direct.	−85 00·5	N.E.	+72	−83 49	−83 35	A great deal of motion. Ship rolling deep.
5.	−65 31	167 42	10 30 A.M.	Direct.	−85 05·8	N.	+91	−83 35		
			11 10 A.M.	N.	−85 17·2			−83 46		
	−65 28	167 47	11 40 A.M.	N.S.	−85 08·8			−83 38		
6.	−65 46	165 04	7 00 A.M.	Direct.	−83 38·3	S.S.W. ½ W.	−69	−84 47		
	−65 51	164 45	11 40 A.M.	Direct.	−83 28·3	S.W. by S.	−63	−84 31		
	−65 53	164 38	5 10 P.M.	Direct.	−84 34·0	W.	+18	−84 16		
7.	−65 53	162 14	10 00 A.M.	Direct.	−85 17·3	N.W.	+72	−84 05	−83 51	
			10 40 A.M.	S.	−85 39·2			−84 27		
			11 20 A.M.	Direct.	−84 08·5	W.S.W.	−17	−84 25		
8.	−64 41	162 34	10 10 A.M.	Direct.	−84 33·7	N.E. by N.	+79	−83 15	−82 55	
				S.	−84 47·7			−83 29		
				N.	−84 52·0			−83 33		
				N.S.	−84 32·6			−83 14		
	−64 38	162 50	11 15 A.M.	Direct.	−84 26·5	N.E. ½ E.	+67	−83 20		
9.	−64 22	164 32	7 30 A.M.	Direct.	−84 04·5	N.N.E.	+86	−82 39	−82 54	Much motion on the 10th.
10.	−64 05	163 17		Direct.	−85 01·7	N.N.E.	+86	−83 36		
11.	−64 13	163 18	9 30 A.M.	Direct.	−84 55·3	N.W. by W.	+62	−83 53		
12.	−63 57	161 11	6 00 A.M.	Direct.	−83 06·5	S.S.W. ½ W.	−69	−84 16		
			6 30 A.M.	Direct.	−82 44·3	S. by W.	−82	−84 06	−83 32	
			to	S.	−82 47·6			−84 10		
			7 45 A.M.	N.	−82 59·7			−84 22		
				N.S.	−82 10·5			−83 33		
13.	−63 28	159 35	11 40 A.M.	Direct.	−83 07·0	S.W. by W. ½ W.	−25	−83 32		Much motion.
14.	−62 41	156 59	10 30 A.M.	Direct.	−83 09·0	W.	+18	−82 51	−82 33	
			to	S.	−83 17·0			−82 59		
			11 10 A.M.	N.	−83 28·7			−83 11		
				N.S.	−83 14·7			−82 57		
			11 20 A.M.	Direct.	−81 52·5	S.S.E.	−75	−83 08		
15.	−63 50	156 06	6 45 A.M.	Direct.	−82 38·0	S. ½ W.	−85	−84 22	−83 54	
			to	S.	−82 42·3					
			7 40 A.M.	N.	−83 08·3					
				?	−83 19·5					

Observations of Inclination. (Continued.)

1841.	Position. Lat.	Position. Long.	Time of day.	Method employed.	Observed Inclination. Face east.	Ship's head.	Correction for ship's attraction.	Mean Inclination. Face east.	True Inclination.	Remarks.
			h m		° ′ ″		′	° ′	° ′	
Mar. 16.	−64 11	154 40	11 45 A.M.	Direct.	−83 28·2	s.w. ½ s.	−57	−84 25	−84 06	
			1 00 to	Direct.	−83 15·0	s.w. by s.	−64	−84 19		
	−64 13	154 03	3 15 P.M.	S.	−83 52·8			−84 57		
	−64 13	154 03		N.	−83 37·0	s.w. by s.	−64	−84 41	−84 06	
				N.S.	−83 28·3			−84 32		
				Direct.	−83 23·0			−84 27		
17.	−64 20	153 02	10 15 A.M.	Direct.	−83 27·6	s.w. by s.	−64	−84 32	−84 14	
			to	S.	−83 48·1			−84 52		
			11 15 A.M.	N.	−83 40·9			−84 45		
				N.S.	−83 47·2			−84 51		
				Direct.	−83 40·7	s.w.	−50	−84 31		
18.	−63 54	151 56	5 45 A.M.	Direct.	−84 44·0	w. by N.	+37	−84 34	−84 06	A heavy head swell.
			to	N.	−85 14·5					
			7 00 A.M.	N.S.	−85 35·2					
19.	−64 18	149 09	11 40 A.M.	Direct.	−84 00·5	s.w. by s.	−64	−85 05	−84 48	
			1 40 P.M.	Direct.	−84 09·7			−85 14		
				S.	−84 26·3			−85 30		
	−64 26	148 20	3 00 P.M.	N.	−84 26·1	s.w. by s.	−64	−85 30	−85 03	
				N.S.	−84 49·0			−85 53		
				Direct.	−84 05·0			−85 09		
	−64 56	147 14	6 15 P.M.	Direct.	−84 15·0	s.s.w.	−76	−85 31		
20.	−65 15	144 53	7 40 A.M.	Direct.	−84 55·7	s.w.	−51	−85 47	−85 05	
			8 50 A.M.	Direct.	−85 25·8	w.s.w.	−15	−85 41		
	−65 12	144 07	10 00 A.M.	Direct.	−86 03·5	w.N.w.	+52	−85 12		
	−65 12	144 07	10 30 A.M.	Direct.	−84 54·3	s.w.	−51	−85 45	−85 10	
			11 20 A.M.	Direct.	−85 08·0	s.w. by w.	−33	−85 41		
	−65 10	143 21	11 40 A.M.	Direct.	−85 12·8	w.s.w.	−15	−85 28		
	−65 10	143 21	11 50 A.M.	S.	−85 45·0	w.s.w.	−15	−86 00	−85 16	
			to	N.	−85 48·3			−86 03		
			1 00 P.M.	N.S.	−85 56·7			−86 12		
				Direct.	−85 55·0	w.	+21	−85 34		
	−65 06	142 40	4 45 P.M.	Direct.	−85 46·5	w.	+21	−85 26		
			6 20 P.M.	Direct.	−85 44·9	w. by N.	+38	−85 07		
21.	−64 20	140 40	5 40 A.M.	Direct.	−85 45·8	w.N.w.	+52	−84 54	−84 36	
			to	S.	−85 53·4			−85 01		
			7 00 A.M.	N.	−85 59·0			−85 07		
				N.S.	−86 11·0			−85 19		
				Direct.	−85 51·7			−85 00		
	−64 08	140 14	11 30 A.M.	Direct.	−84 24·5*	N. ½ w.				
22.	−63 09	139 28	9 30 A.M.	Direct.	−85 54·5	N.w. by w.	+62	−85 14	−84 46	
			to	S.	−86 33·1					
			11 10 A.M.	N.	−86 57·1					
				N.S.	−86 25·7					
				Direct.	−86 02·0					

* There is an obvious error here in the degree recorded; it should be probably 86°. The observation is not employed.—E. S.

Observations of Inclination. (Continued.)

1841.	Position. Lat.	Position. Long.	Time of day.	Method employed.	Observed Inclination. Face east.	Ship's head.	Correction for ship's attraction.	Mean Inclination. Face east.	True Inclination.	Remarks.
	° ′	° ′	h m		° ′		′	° ′	° ′	
Mar. 22.				Direct.	−85 59·7	N.W. by W.	+62	−85 14	−84 46	
				Direct.	−86 02·0					
22.	−62 46	138 22	4 00 P.M.	Direct.	−85 48·8					
23.	−62 13	136 20	10 15 A.M.	Direct.	−85 37·9					
			to	S.	−85 58·0	N.W. by W.	+62	−84 48	−84 20	
			Noon.	N.	−85 51·5					
				N.S.	−86 10·9					
				Direct.	−85 32·5					
24.	−61 20	134 05	6 10 A.M.	Direct.	−85 19·1					
			to	S.	−85 17·7					
			7 00 A.M.	N.	−85 33·9	N.W. by W.	+62	−84 23	−83 55	
				N.S.	−85 46·2					
	−61 11	133 52	11 40 A.M.	Direct.	−85 07·5					
25.	−60 22	131 27	11 45 A.M.	Direct.	−85 05·5	N.W.	+72	−83 54		
	−60 19	131 20	3 15 P.M.	Direct.	−85 04·1			−83 45		
			to	S.	−85 20·6	N.W. by N.	+79	−84 02	−83 31	
			4 15 P.M.	N.	−85 21·4			−84 02		
				N.S.	−85 32·5			−84 13		
26.	−59 25	130 14	10 15 A.M.	Direct.	−84 29·0					
			to	S.	−84 49·0					
			11 40 A.M.	N.	−84 28·7	N.W. by N.	+79	−83 20	−82 52	
				N.S.	−84 56·2					
				Direct.	−84 33·5					
27.	−58 06	128 43	11 40 A.M.	Direct.	−84 03·0	N.N.W.	+86	−82 37	−82 09	
28.	−57 22	127 37	10 30 A.M.	Direct.	−82 37·7	W.	+18	−82 20	−81 43	Much motion.
			11 45 A.M.	Direct.	−82 51·0	E.N.E.	+49	−82 02		
29.	−56 28	129 57	11 30 A.M.	Direct.	−82 21·5	N.E.	+71	−81 11	−80 43	Ship very unsteady.
30.	−55 00	131 43	6 15 A.M.	Direct.	−81 28·5	N.E. by E.	+62	−80 27		
			to	S.	−81 14·1			−80 12		Ship very unsteady.
			7 15 A.M.	N.	−82 29·2			−81 12	−80 15	
				N.S.	−82 36·0	N.E. by N.	+77	−81 19		
	−55 11	132 10	11 45 A.M.	Direct.	−81 41·0			−80 24		
	−54 55	132 50	5 00 P.M.	Direct.	−81 26·5			−80 10		
				S.	−81 48·5	N.E. by N.	+77	−80 32		
				N.	−81 59·7			−80 43		
				S.	−81 54·7			−80 38	−80 07	
				N.	−81 55·9	N.E. by N.	+77	−80 39		
				N.S.	−82 05·5			−80 48		
31.	−54 4	134 54	11 40 A.M.	Direct	−79 45·5	E. ½ N.	+27	−79 19		
			0 15 P.M.	Direct.	−80 25·0	E.	+19	−80 06		
			1 00 P.M.	Direct.	−80 00·0	E. ½ N.	+27	−79 33		
	−54 00	135 02	2 00 P.M.	Direct.	−81 21·3			−80 11		
			to	S.	−81 50·2			−80 40	−79 39	
			3 30 P.M.	N.	−81 46·4	N.W.	+70	−80 36		
				N.S.	−81 26·6			−80 17		
				Direct.	−81 22·7			−80 13		

Observations of Inclination. (Continued.)

1841.	Position. Lat.	Position. Long.	Time of day.	Method employed.	Observed Inclination. Face east.	Ship's head.	Correction for ship's attraction.	Mean Inclination. Face east.	True Inclination.	Remarks.
	° ′	° ′	h m		° ′		′	° ′	° ′	
April 1.	−53 13	135 18	9 00 A.M.	Direct.	−80 48·5	N.N.E.	+82	−79 37	−79 09	
			to	S.	−81 20·1					
			11 45 A.M.	N.	−81 08·2					
				N.S.	−80 46·3					
				Direct.	−80 51·2					
2.	−51 16	136 50	6 00 A.M.	Direct.	−79 55·8	N.N.E.	+82	−78 27	−77 59	
			to	S.	−79 49·5					
			7 15 A.M.	N.	−79 47·7					
				N.S.	−79 45·0					
3.	−48 56	138 34	11 45 A.M.	Direct.	−78 41·6	N.N.E.	+81	−77 22	−76 54	Much sea.
			2 00 P.M.	Direct.	−78 50·3					
			to	N.	−79 09·4					
	−48 24	138 32	4 00 P.M.	N.S.	−78 13·0					
4.	−46 55	139 55	7 20 to	Direct.	−77 05·5	N.E.	+69	−76 10	−75 42	Heavy sea, ship rolling deep.
			8 20 A.M.	N.	−77 29·8					
				N.S.	−77 20·7					
			10 30 A.M.	Direct.	−77 00·5	N.E.				Instrument in wrong azimuth.
			to	N.	−77 39·8					
			11 50 A.M.	N.S.	−77 37·9					
	−46 34	140 36	Noon.	S.	−77 37·5	N.E.				
				N.	−77 33·2					
				N.S.	−77 49·1					
				Direct.	−78 11·5					
	−46 29	140 40	0 40 to	Direct.	−77 23·0	N.E.	+69	−75 47	−75 12	
			1 30 P.M.	S.	−76 33·5					Heavy sea.
				N.	−76 29·0					
				N.S.	−77 18·0					
	−46 22	141 06	4 40 P.M.	Direct.	−76 48·5	N.E. by E.	+62	−75 33		Much motion.
			to	S.	−76 29·7					
			5 50 P.M.	N.	−76 10·2					
				N.S.	−76 50·6					
5.	−45 02	145 10	6 30 A.M.	Direct.	−76 04·0	N.E. by E.	+60	−74 20	−73 54	
			to	S.	−75 02·2					
			8 30 A.M.	N.	−75 11·5					
				N.S.	−75 03·2					
	−44 52	143 27	11 40 A.M.	Direct.	−75 49·5	N.E. by E.	+60	−74 24		
			4 30 P.M.	Direct.	−75 28·5					
			to	S.	−74 57·6					
			5 00 P.M.	N.	−75 20·9					
6.	−44 00	145 57	11 35 A.M.	Direct.	−73 49·8	N.E. by E.	+58	−72 52	−72 15	
			1 20 P.M.	Direct.	−73 35·5	N.E. ½ E.	+62	−72 34		
	−43 41	146 03	to	S.	−73 43·0			−72 41		Running along the land.
			4 30 P.M.	N.	−73 41·9			−72 40		
				N.S.	−73 47·6			−72 46		

Observations of the Intensity of the Magnetic Force made in Her Majesty's Ship Erebus, from September 1840 to April 1841, with Needle R. F. 4.

Observers Captain Ross and Lieutenant Smith, R.N.

1840.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Correction for ship's attraction.	Corrected Intensity.		Remarks.
	° ′	° ′		° ′	°						
Sept. 17.	Magnetic Observatory, Hobarton.		Deflector S.	50 00·8	52	Observed on shore*.	1·820	.....	1·820		
	−42 52	147 24	wt. ½ gr.	2 41·4	52						
18.			wt. 1 gr.	5 22·7	52						
			wt. 1½ gr.	8 14·6	52						
			wt. 2 grs.	10 49·6	52						
			wt. 3 grs.	16 15	52						
Oct. 17.		To obtain corrections for the ship's attraction.	S.	49 23	54	S.E. by S.	1·869	−·035	1·834		
			S.	49 51	54	W.	1·833	−·003	1·830		
			S.	49 27·2	54	S. by E.	1·864	−·043	1·821		
			S.	49 39	54	S.S.E.	1·849	−·039	1·810		
21.			S.	49 50·9	51	W.N.W.	1·833	+·008	1·841		
			S.	49 48·8	51	S.E.	1·835	−·031	1·804		
29.			S.	50 19·8	48	N.	1·792	+·028	1·820		
			S.	50 23·7	48	N.N.E.	1·787	+·024	1·811		
			S.	50 21·8	48	N.E.	1·789	+·020	1·809		
			S.	50 02·9	48	E.N.E.	1·816	+·008	1·824		
			S.	49 53·5	48	E.	1·828	−·003	1·825	1·823	
			S.	50 09·4	48	N.N.W.	1·807	+·024	1·831		
			S.	50 12·6	48	N.W.	1·803	+·020	1·823		
			S.	49 40	48	W.S.W.	1·848	−·017	1·831		
			S.	49 52·2	48	W.	1·831	−·003	1·828		
			S.	49 56·2	48	W.N.W.	1·826	+·008	1·834		
			S.	49 28·8	48	S.W.	1·862	−·031	1·831		
			S.	49 28·2	48	S.S.W.	1·863	−·039	1·824		
			S.	49 27·0	48	S.	1·864	−·046	1·818		
			S.	49 24·5	48	S.S.E.	1·867	−·039	1·828		
			S.	49 39·5	48	S.E.	1·849	−·031	1·818		
			S.	49 52·7	48	E.S.E.	1·830	−·017	1·813		
Nov. 13.	−44 10	149 29	S.	49 23·8	54	E.S.E.	1·868	−·017	1·851	1·844	
			N.	47 05·9	54		1·855	−·017	1·838		
14.	−45 13	151 57	S.	49 34·5	45	S.E.	1·855	−·031	1·824	1·833	Much motion. Observations by no means good.
			N	46 50·5	45		1·872	−·031	1·841		
15.	−45 33	152 45	S.	49 56·9	51	E.	1·824	−·003	1·821	1·843	Ship pitching greatly.
			N.	46 53·5	51		1·869	−·003	1·866		
16.	−46 18	154 30	S.	49 50·7	57	E.S.E.	1·833	−·017	1·816	1·820	
			N.	47 17	57		1·841	−·017	1·824		
17	−47 46	157 40	S.	49 52	51	S.E. by E. ½ E.	1·831	−·020	1·811	1·817	Much motion.
			N.	47 15	51		1·843	−·020	1·823		
18.	−49 20	160 13	S.	49 34	50		1·856	−·020	1·836	1·846	
			N.	46 47·2	50		1·876	−·020	1·856		

* The angles of deflection with 4, 5 and 6 grains, not having been observed at Hobarton, have been computed from the angles produced by the five weights which were employed at that station; they are as follows:—

gr.	° ′
4	22 06
5	28 03·5
6	34 21.

Observations of the Magnetic Force. (Continued.)

1840.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Correction for ship's attraction.	Corrected Intensity.	Remarks.
Nov. 19.	−50° 28′	164° 9′	S.	49° 11′	49°	E.	1·884	−·003	1·881	1·858
			N.	47 20	49		1·838	−·003	1·835	
21.	Auckland Island*.		S.	49 44·2	42	W.N.W.	1·842	+·008	1·850	
	−50 33	166 19	N.	47 27·6	42		1·830	+·008	1·838	
			wt. ½ gr.	2 33·9	42		1·830			
	At anchor.		wt. 1 gr.	5 13	50	N.W. by W.	1·876	+·013	1·889	1·864
			wt. 2 grs.	10 27·3	50		1·884	+·013	1·897	
			wt. 3 grs.	15 28·6	50		1·909	+·013	1·922	
26.			S.	49 29·2	41	S.S.W.	1·862	−·037	1·825	
27.			S.	49 50·6	42	W.S.W.	1·833	−·013	1·830	
			S.	49 29	53	Observed on shore.	1·862			
			N.	46 50·2	53		1·873			
			wt. ½ gr.	2 33·5	52					
24.	On shore.		wt. 1 gr.	5 18·4	52		1·844	....	1·859	
			wt. 1½ gr.	8 02·2	52		1·867			
			wt. 2 grs.	10 36·8	52		1·856			
			wt. 3 grs.	15 58·3	52		1·851			
26.	Pig Island.		S.	50 31	46		1·778			
			N.	47 38	46		1·818			
	Shoe Island.		S.	47 50·7	44		1·981	....	.....	Excessive local attraction.
			N.	45 3·6	44		1·993			
30.	Ocean Point.		S.	49 49·8	51		1·834			
			S.	49 28	51		1·863			
	Sandy Bay.		S.	49 27	58		1·864	....	1·847	
			N.	47 31·7	58		1·826			
			S.	59 56	55		....	....	.....	Excessive local attraction.
Dec. 2.	Auckland Island.		N.	57 19·2	55		....			
6.			S.	49 35	50	S.W.	1·854	−·030	1·824	
			S.	49 05·9	50	S.S.W.	1·891	−·036	1·855	
7.			S.	49 57·2	49	W. by S.	1·824	−·008	1·816	
8.			S.	49 21·9	52	S.	1·871	−·041	1·830	
			S.	49 19	52	S.S.E.	1·874	−·036	1·838	
			S.	49 29·2	50	S.E.	1·862	−·030	1·832	
			S.	49 29·5	50	E.S.E.	1·862	−·015	1·847	
	At anchor.		S.	49 44·9	50	E.	1·841	−·003	1·838	1·836
			S.	49 46·7	51	E.N.E.	1·838	+·008	1·846	
			S.	49 58	52	N.E.	1·823	+·018	1·841	
			S.	50 06·9	52	N.N.E.	1·810	+·021	1·831	
			S.	49 51·4	50	N.	1·832	+·026	1·858	
			S.	50 01·8	50	N.N.W.	1·817	+·021	1·838	
			S.	50 16·3	50	N.W.	1·797	+·018	1·815	
10.			S.	49 27·2	52	S.E.	1 864	−·030	1·834	

* Mean of the results at Auckland Island, omitting those which appear to have been affected by excessive local attraction:

November 21 and 26, on board ..	1·864	1·851.
November 24, on shore ..	1·859	
November 30, on shore ..	1·847	
December 6, 7 and 8, on board ..	1·836	

Observations of the Magnetic Force. (Continued.)

1840.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Correction for ship's attraction.	Corrected Intensity.	Remarks.
	° ′	° ′		° ′	°					
Dec. 14.	Campbell Island*,		S.	50 01·4	50	N.W.	1·819	+·018	1·837	
16.	at anchor.		S.	49 39·2	50	W.	1·849	—·003	1·846	1·846
			S.	49 04·5	52	S.S.W.	1·893	—·037	1·856	
			S.	49 20·5	55		1·873			
			N.	46 10·8	55		1·917			
			wt. ½ gr.	2 35·3	55					
			wt. 2 grs.	10 12·1	55		1·930			
	On shore.		wt. 3 grs.	15 30·2	55		1·906			
15.	—52 42	169 10	wt. ½ gr.	2 32·9	52	Observed on shore.			....	1·909
			wt. 1 gr.	4 59·2	52		1·963			
			wt. 2 grs.	10 12·6	52		1·929			
			wt. 3 grs.	15 30·2	52		1·906			
			S.	49 17	52		1·877			
			N.	46 45·7	53		1·878			
18.	—53 47	169 02	S.	49 13·6	44	S.S.E.	1·881	—·037	1·844	
	—54 25	169 16	N.	46 18·5	44	S.S.E. ½ E.	1·908	—·034	1·874	
19.	—55 50	170 6	N.	45 48	48	S. by W.	1·943	—·040	1·903	
			N.S.	22 39·5	48					
21.	—57 15	170 40	N.	45 42·7	38	S.S.E.	1·949	—·035	1·914	
			N.S.	22 26						
	—57 54	170 25	N.	45 44·5	42	S. by E.	1·948	—·037	1·911	
			N.S.	22 25·6						
22.	—58 57	170 57	S.	48 17·7	41		1·951	—·040	1·911	1·920
			N.	45 25·2		S.	1·969	—·040	1·929	
			N.S.	22 31·7						
23.	—59 41	169 38	S.	48 11·5	39		1·959	—·031	1·928	1·936
			N.	45 20·2		S.S.W.	1·975	—·031	1·944	
			N.S.	22 29·5						
	—59 48	169 42	N.S.	22 31·5	37	E.				
24.	—60 14	170 15	N.	45 16·9	36	S.E. ½ S.	1·978	—·027	1·951	
			N.S.	22 27	36					
	—60 31	170 32	S.	47 59·2	42		1·972	—·029	1·943	1·951
			N.	45 08·1	41	S.S.E.	1·988	—·029	1·959	
			N.S.	22 27	40					
	—60 46	170 44	S.	48 13·7	40		1·956	—·027	1·929	
			N.	45 15·1	40	S.E. by S.	1·980	—·027	1·953	1·960
			N.S.	22 29·3	39					
25.	—61 34	170 40	N.	45 08·4	35	S.	1·988	—·032	1·956	
			N.S.	22 27·6	35					
26.	—62 04	172 48	N.	45 00	46	N.	1·997	+·011	2·008	
			N.S.	22 15·7	45					
28.	—62 40	174 40	S.	47 33·2	34		2·001	—·032	1·969	1·983
			N.	44 30·6	34	S.	2·029	—·032	1·997	
	—62 52	174 28	N.S.	22 0·5	34					
			N.S.	22 15·2	34					
29.	—64 0	172 44	S.	47 53·9	33		1·978	—·026	1·952	1·976
			N.	44 34·2	33	S.S.W. ½ W.	2·026	—·026	2·000	
	—64 06	172 38	N.S.	22 11·7	33					
			S.	47 45	34	S.S.W.	1·988	—·028	1·960	1·973
			N.	44 42·3	34	S. by W.	2·016	—·030	1·986	
			N.S.	22 14·7						

* Mean of the results at Campbell Island :

December 14 and 15, on shore.. 1·909
December 14 and 16, on board.. 1·846 } 1·877.

Observations of the Magnetic Force. (Continued.)

1840.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Correction for ship's attraction.	Corrected Intensity.		Remarks.
Dec. 30.	−64° 30′	172° 51′	N.S.	22° 17′·6	33°	s. by w.					
			S.	47 17	44		2·018	−·030	1·988	1·988	
	−64 31	173 00	N.	44 41·1			2·018	−·030	1·988		
			N.S.	21 26·7							
31.	−65 58	171 47	S.	46 58·5	34	s.	2·039	−·028	2·011	1·995	
			N.	44 34			2·026	−·028	1·998		
			N.S.	21 36·2							
	−66 17	170 57	S.	47 29·5	35		2·005	−·023	1·982		
			N.	44 47·1		s. by w. ½ w.	2·012	−·023	1·989		
1841.			N.S.	21 52·3							
Jan. 1.	−66 30	169 13	S.	47 15·8	37		2·020	−·027	1·993	2·008	
			N.	44 30·1		s.	2·030	−·027	2·003		
			N.S.	21 43·5							
	−66 32	169 45	S.	47 13	35	n.	2·023	+·006	2·029		
			N.S.	22 05·4							
2.	−66 23	170 12	S.	47 51·5	36		1·981	+·004	1·985	2·018	
			N.	44 13·9		n.n.w. ½ w.	2·047	+·004	2·051		
			N.S.	21 56·1							
3.	−65 39	170 44	S.	47 01·6	35		2·035	+·005	2·040	2·046	Much motion.
			N.	44 14·5	34	n.n.w.	2·047	+·005	2·052		
			N.S.	22 37·5	33						
4.	−65 22	170 40	S.	47 00·5	34		2·037	−·013	2·024	2·025	Much motion.
			N.	44 20·5		e. ½ s.	2·040	−·013	2·027		
			N.S.	21 54·1							
5.	−66 55	174 31	S.	47 11·7	35		2·024	−·015	2·009	2·009	Sailing among loose ice.
			N.	44 35·9		e.s.e.	2·023	−·015	2·008		
			N.S.	21 55							
6.	−68 17	175 0	S.	47 26·1	34		2·009	−·015	1·994		Among ice.
7.	−68 32	175 49	S.	47 15·8			2·020	−·012	2·008		Standing off and on in the pack.
			N.	44 27·9		e.	2·032	−·012	2·020	2·011	
			S.	47 16·5	30		2·019	−·012	2·007		
			N.	44 21·1		w.	2·040	−·012	2·028		
8.	−68 28	176 31	S.	47 09·1	39		2·027	−·002	2·025	2·032	
			N.	44 04·7		e. by n. ½ n.	2·058	−·002	2·056		
			N.S.	21 55							
			S.	47 03·3	39	w. by s. ½ s.	2·034	−·013	2·021		
			N.	44 22·6		w.	2·038	−·011	2·027		
			N.S.	22 00·1							
	−68 28	176 32	S.	47 15·7	42		2·021		2.021	2·025	
			N.	44 17·1			2·044		2.044		
			N.S.	21 54·8		Observed					
			wt. ½ gr.	2 28	41	on ice.					
			wt. 3 grs.	14 34·3			2·021		2·021		
			wt. 6 grs.	30 38·7			2·015		2·015		
9.	−68 48	176 45	S.	47 06			2·030	−·021	2·009	2·016	
			N.	44 16		s.s.e.	2·045	−·021	2·024		
			N.S.	21 48·2							
10.	−70 23	174 50	S.	46 58·9	32		2·038	−·022	2·016	2·033	Very unsteady.
			N.	43 49·2	31		2·073	−·022	2·051		
			N.S.	22 10							
11.	−71 15	171 15	S.	46 47·5	30	s.	2·050	−·022	2·028	2·030	Very unsteady.
			N.	44 07·3	30		2·054	−·022	2·032		
			N.S.	22 03·5							
	−71 24	170 44	S.	46 49·9	45		2·047	−·021	2·026	2·029	
			N.	44 08·6		s. by w.	2·053	−·021	2·032		
			N.S.	21 53·6	43						

Observations of the Magnetic Force. (Continued.)

1841.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Correction for ship's attraction.	Corrected Intensity.		Remarks.
Jan. 12.	−71° 47′	170° 52′	S.	46° 41′·5	34°	W.S.W.	2·057	−·011	2·046	2·056	
			N.	43 44·1	33		2·078	−·011	2·067		
13.	−72 07	172 19	S.	47 24·5	33	E. by N. ½ N.	2·011	−·005	2·006	2·038	Much motion. Observations indifferent.
			N.	43 47·4	33		2·075	−·005	2·070		
			N.S.	21 47·9	33						
15.	−71 55	171 51	S.	47 25·2	33	E.	2·010	−·007	2·003	2·028	
			N.S.	21 45·2							
			N.	44 02			2·060	−·007	2·053		
16.	−72 12	172 13	S.	46 52·4	28	s. by w.	2·044	−·019	2·025	2·032	
			N.	44 04			2·058	−·019	2·039		
			N.S.	21 47·5							
17.	−72 09	173 35	N.	44 26·7	30	E.	2·033	−·007	2·026		Much motion.
			N.S.	21 36·5							
18.	−72 57	176 06	S.	46 30·1	31	S.E. by E.	2·070	−·014	2·056	2·038	
			N.	44 28·7		E.S.E.	2·031	−·011	2·020		
			N.S.	22 01·5							
19.	−72 35	173 34	S.	46 49·8	41	S.W. by W.	2·047	−·015	2·032	2·035	
			N.	44 07·9			2·054	−·015	2·039		
			N.S.	21 54·8							
	−72 31	173 39	S.	46 53	34	S. by E. ½ E.	2·044	−·018	2·026	2·039	
			N.	43 51·8			2·070	−·018	2·052		
			N.S.	21 50·1							
20.	−73 47	171 50	S.	46 31·9	34	S.E.	2·067	−·014	2·053	2·052	
			N.	43 56·3			2·066	−·014	2·052		
			N.S.	21 37·7							
21.	−74 10	170 28	S.	46 50·7	30	S. by E.	2·046	−·019	2·027	2·044	
			N.	43 41·8			2·080	−·019	2·061		
			N.S.	21 39							
	−74 06	171 20	S.	46 42	31	N. by E.	2·056	−·004	2·052	2·052	
			N.	44 06			2·056	−·004	2·052		
			N.S.	22 08·6							
22.	−73 56	172 20	S.	46 57·7	32	S. by E.	2·041	−·017	2·024	2·035	Very unsteady.
			N.	44 00			2·062	−·017	2·045		
			N.S.	21 52·2							
24.	−74 35	173 01	N.	44 07	29		2·055	−·017	2·038	2·037	
			N.S.	21 27·8							
25.	−74 36	173 01	S.	46 51·7	29	S. ½ W.	2·045	−·018	2·027		
			N.	43 59			2·063	−·018	2·045		
25.	−74 44	169 43	N.S.	21 47							
			S.	46 48·6	30	E.	2·048	−·007	2·041	2·045	
			N.	44 05·7	30		2·056	−·007	2·049		
			N.S.	21 50·3	29						
27.	−75 22	168 48	S.	46 42	30	S.S.E.	2·056	−·016	2·040	2·048	
			N.	43 48·6	28		2·073	−·016	2·057		
			N.S.	22 01	27						
	−76 06	168 11	S.	47 01·2	33	S.E.	2·036	−·015	2·026	2·031	
			N.	44 07·3			2·055	−·015	2·040		
			N.S.	21 44·4							
28.	−76 46	169 22	S.	46 59·9	37	E.	2·037	−·008	2·029	2·040	Two points out of the meridian.
			N.	44 03·7	37		2·058	−·008	2·050		
			N.S.	22 0·0	37						
29.	−77 47	175 43	S.	47 19·9	29	N. by W.	2·015	−·005	2·015	2·017	
			N.	44 32·2	29		2·028	−·005	2·023		
			N.S.	21 51·9	28						

Observations of the Magnetic Force. (Continued.)

1841.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Correction for ship's attraction.	Corrected Intensity.		Remarks.
Jan. 31.	−77° 04′	188° 18′	S.	47° 43·6	25°	N.E. by N.	1·989	−·001	1·988	2·017	
			N.	44 23·5			2·036	−·001	2·035		
			N.S.	22 26·6							
Feb. 1.	−77 04	188 30	S.	47 06·9			2·029	−·016	2·013		
			N.	44 13·5			2·047	−·016	2·031		
			N.S.	22 14·8							
	−77 09	188 15	wt. 6 grs.	30 45	30	S.E.	2·014	.....	.....		Ship's motion very considerable.
			wt. 1 gr.	4 42	31						
			wt. ½ gr.	2 27·6	31						
3.	−77 17	185 26	S.	46 59·9	33	W.S.W.	2·037	−·012	2·025	2·023	
			N.	44 02·6	34		2·034	−·012	2·022		
			N.S.	21 55·6	35						
4.	−77 00	192 18	S.	46 57·2		E. by N.	2·040	−·006	2·034	2·039	
			N.	44 16·3	24		2·045	−·006	2·039		
			N.S.	22 00·1							
			S.	47 01·7	23		2·035	−·006	2·029		
			N.	44 00	21		2·062	−·006	2·056		
5.	−77 10	192 48	S.	46 57·8	24	E.	2·039	−·007	2·032	2·036	
			N.	44 14·2			2·047	−·007	2·040		
			N.S.	22 10	19						
	−77 14	192 02	S.	46 41·5	20	S.	2·056	−·021	2·035	2·020	
			N.	44 33	19		2·027	−·021	2·006		
			N.S.	22 07·8	18						
6.	−77 09	188 50	S.	47 07·7	28	E.N.E.	2·028	−·005	2·023	2·036	
			N.	44 06·6	24		2·055	−·005	2·050		
			N.S.	21 58·9							
7.	−76 58	180 40	S.	46 50·9	27	S. by W.	2·046	−·019	2·027	2·035	
			N.	44 00·4	24		2·062	−·019	2·043		
			N.S.	22 02·3	23						
8.	−77 47	187 18	S.	47 03	34	N.E. by E. ½ E.	2·034	−·004	2·030	2·035	
			N.	44 23·2	33		2·038	−·004	2·034		
			N.S.	22 03·4	32						
			wt. 6 grs.	30 30·9			2·023	−·004	2·019		
			wt. 3 grs.	14 14·6			2·071	−·004	2·067		
			wt. 2 grs.	9 15·6			2·124	−·004	2·120		
			wt. 1 gr.	6 15·1							
			wt. ½ gr.	2 27·8							
10.	−77 39	187 06	wt. 6 grs.	30 34·7	28	S. by E.	2·019	−·019	2·000		
			wt. 3 grs.	14 37			2·019	−·019	2·000		
			wt. 2 grs.	9 30·9			2·067	−·019	2·048		
			wt. 1 gr.	4 34·2							
			wt. ½ gr.	2 13·2							
			S.	46 55·5	33		2·041	−·019	2·022		
			N.	44 13·9	29		2·047	−·019	2·028		
			N.S.	21 55·9	29		2·041	−·019	2·022		
11.	−76 55	188 40	S.	46 47	21	N.W.	2·050	−·002	2·048		
12.	−76 50	183 26	N.	44 13·2	25	S.E. by E.	2·048	−·013	2·035		Much motion.
			N.S.	21 47·5	24						
14.	−76 16	175 50	S.	46 55·1	34	S.S.W.	2·042	−·017	2·025	2·017	
			N.	44 33·7	33		2·026	−·017	2·009		
			N.S.	22 09·9	32						
15.	−76 03	169 30	N.	44 08·5	30	S.	2·053	−·020	2·033	2·033	
			N.S.	22 00·2	30						
16.	−76 20	165 32	S.	46 45·9	30	S.S.E.	2·051	−·012	2·039	2·041	
			N.	44 08·4	30		2·054	−·012	2·042		
			N.S.	22 09·6	29						

Observations of the Magnetic Force. (Continued.)

1841.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Correction for ship's attraction.	Corrected Intensity.		Remarks.
Feb. 19.	−75° 03′	168° 44′	S.	46° 38′·8	35°		2·059	−·011	2·048	2·040	
			N.	44 16·9	32	S.W.	2·044	−·011	2·033		
			N.S.	22 03·2	31						
21.	−71 17	170 43	S.	46 55·7	32		2·041	−·011	2·030	2·037	
			N.	44 07·7	30	S.W. by W. ½ W.	2·055	−·011	2·044		
	−71 34	178 07	S.	47 04	27		2·033	−·007	2·026	2·026	
			N.	44 28·2	26	W.	2·032	−·007	2·025		
			N.S.	22 12	26						
22.	−70 41	167 26	S.	47 01·4	24		2·036	−·001	2·035		Much motion.
			N.	43 48·5	24	N.N.E.	2·073	−·001	2·072		
			N.S.	22 01·3	23						
24.	−70 14	167 34	S.	46 43·4	26		2·055	−·018	2·037	2·036	
			N.	44 09·6	25	S.S.W. ½ W.	2·052	−·018	2·034		
			N.S.	22 12·1	24						
25.	−70 14	167 16	N.	44 35·3	22	S.	2·024	−·020	2·004		Much motion.
			N.S.	21 41·1	19						
27.	−69 24	167 55	S.	46 46·5	30	S.E.	2·050	−·016	2·034		Unsteady.
			N.S.	21 59·9	29						
28.	−69 40	167 48	N.	44 27·1	22	S. by E.	2·033	−·019	2·014	2·025	
			N.S.	21 55·9	21						
Mar. 1.	−69 08	167 44	N.	44 31	24	N.W. by W.	2·029	−·002	2·027		
			N.S.	21 56	22						
2.	−68 28	168 10	S.	46 50·3	27	W. by N.	2·048	−·005	2·043	2·047	
			N.	44 07·8	26	N.W. by W.	2·054	−·002	2·052		
			N.S.	22 20	28						
3.	−67 52	167 28	S.	46 43·4	16		2·055	−·007	2·048	2·043	
			N.	44 17·5	14	W.	2·044	−·007	2·037		
			N.S.	22 27·9	14						
5.	−65 31	167 42	N.	44 25·1	28	N.	2·035	+·006	2·041		A good deal of motion.
			N.S.	22 23·2	27						
7.	−65 33	162 14	S.	47 31·7	34	N.W.	2·002	+·003	2·005		
8.	−64 41	162 34	S.	47 17·9	35		2·017	+·004	2·021	2·024	
			N.	44 19·6	33	N.E. by N.	2·041	+·004	2·045		
			N.S.	22 09·6	34						
11.	−64 13	163 18	S.	47 29·3	31		2·005	+·002	2·007	2·018	
			N.	44 33	30	N.W. by W.	2·027	+·002	2·029		
			N.S.	22 29·8	30						
12.	−63 57	161 11	S.	47 06·8	31		2·029	−·022	2·007	2·010	
			N.	44 25·4	30	S. by W.	2·035	−·022	2·013		
			N.S.	21 59	30						
14.	−62 41	156 59	S.	47 13	28		2·023	−·012	2·011	2·022	
			N.	44 16·7	28	W.	2·045	−·012	2·033		
			N.S.	21 49·7	28						
15.	−63 50	156 06	S.	47 02·7	33		2·034	−·024	2·010	2·013	
			N.	44 22·3	31	S. ½ W.	2·039	−·024	2·015		
			N.S.	21 40·8	31						
16.	−64 13	154 03	S.	47 04·3	22		2·033	−·020	2·013	2·011	
			N.	44 31	22		2·029	−·020	2·009		
			N.S.	22 10·1	22						
17.	−64 20	153 02	S.	46 50·1	26	S.W. by S.	2·047	−·020	2·027	2·032	
			N.	44 03·6	25		2·058	−·020	2·038		
			N.S.	22 09·2	25						
18.	−63 54	151 56	N.	44 32	29	W. by N.	2·028	−·005	2·023		A heavy head swell.
			N.S.	22 42	27						
19.	−64 26	148 20	S.	46 23·5	30		2·078	−·020	2·058	2·065	
			N.	43 29·9	29	S.W. by S.	2·092	−·020	2·072		
			N.S.	22 01	29						

Observations of the Magnetic Force. (Continued.)

1841.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Correction for ship's attraction.	Corrected Intensity.		Remarks.
Mar. 20.	−65° 10′	143° 21′	S.	46° 45·7	22°		2·051	−·012	2·039		Along the edge of the pack.
			N.	43 54·1	21	W.S.W.	2·068	−·012	2·056		
			N.S.	22 16·5	21					2·068	
21.	−64 20	140 40	S.	45 55·9	22		2·106	−·004	2·102		
			N.	43 41	21	W.N.W.	2·081	−·004	2·077		
			N.S.	21 29·5	21						
22.	−63 09	139 28	wt. 5 grs.	25 11·2	34		2·012	−·002	2·010		
			wt. 4 grs.	19 34·1	34		2·045	−·002	2·043		
			wt. 3 grs.	14 18·6	34		2·062	−·002	2·060		
			wt. 3 grs.	14 13	34		2·074	−·002	2·072	2·043	
			wt. 2 grs.	9 39	34		2·040	−·002	2·040		
			S.	46 53·9	34		2·043	−·002	2·041		
			N.	44 21·6	34		2·039	−·002	2·037		
			N.S.	22 00·2	34	N.W. by W.					
23.	−62 13	136 20	S.	47 16·5	35		2·019	−·000	2·019		
			N.	44 14·5	34		2·046	−·000	2·046		
			N.S.	21 36·6						2·051	
24.	−61 20	134 05	S.	46 47·2	35		2·050	−·000	2·050		
			N.	43 50·1	35		2·072	−·000	2·072		
			N.S.	21 56	35						
25.	−60 19	131 20	S.	46 41·1	38		2·057	+·003	2·060	2·071	
			N.	43 42·6	37	N.W. by N.	2·079	+·003	2·081		
			N.S.	21 58	36						
27.	−58 00	128 40	S.	46 59·2	35		2·038	+·005	2·043	2·056	
			N.	43 58	34	N.N.W.	2·064	+·005	2·069		
			N.S.	22 01·1	34						
30.	−55 00	131 43	S.	47 34·3	40	N.E. by E.	2·000	+·003	2·003		Very unsteady.
			N.	44 26·7	38		2·033	+·007	2·040		
			N.S.	22 20·5	38						
	−54 58	132 50	S.	47 30	40		2·004	+·007	2·011		Deflecting needle had a fall; repeated the observations to find if any effect was produced.
			N.	44 43·5	40	N.E. by N.	2·016	+·007	2·023	2·027	
			S.	47 31·7	39		2·002	+·007	2·009		
			N.	44 44·4	39		2·016	+·007	2·023		
			N.S.	22 33·8	39						
31.	−54 00	132 02	S.	46 56·3	40		2·041	+·006	2·047		
			N.	44 09·5	40	N.W.	2·053	+·006	2·059		
			N.S.	21 37·6	40						
April 1.	−53 13	135 18	S.	46 55·4	43		2·042	+·012	2·054		
			N.	44 41·5	40		2·017	+·012	2·029		
			N.S.	22 29·7	39						
			wt. 6 grs.	31 08·5	40		1·987	+·012	1·999	2·047	
			wt. 5 grs.	25 28·5	40		1·990	+·012	2·002		
			wt. 4 grs.	19 39·7	40		2·035	+·012	2·047		
			wt. 3 grs.	14 07·7	40		2·086	+·012	2·098		
			wt. 2 grs.	9 26·2	40	N.N.E.	2·086	+·012	2·098		
			wt. 1 gr.	5 10·2	40						
2.	−51 16	136 50	S.	47 16	43		2·020	+·013	2·033	2·041	
			N.	44 23·8	41		2·036	+·013	2·049		
			N.S.	22 18·5	39						
3.	−48 24	138 32	N.	45 01·5	43		....	.....	.....		Much motion and rolling deep.
			N.S.	22 56·3	44						
4.	−46 55	139 55	N.	46 33·4	45	N.E.	....	.....	.....		A heavy sea.
	−46 29	140 40	S.	48 37·8	44		1·927	+·015	1·942	1·949	
			N.	45 50·1	44	N.E.	1·941	+·015	1·956		A heavy sea running.
			N.S.	23 03	44						

Observations of the Magnetic Force. (Continued.)

1841.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Correction for ship's attraction.	Corrected Intensity.		Remarks.
April 4.	—46° 22′	141° 06′	S.	48° 31′·5	45°	N.E. by E.	1·934	+·011	1·945	1·954	
			N.	45 40·2	45		1·952	+·011	1·963		
			N.S.	23 00·9	45						
5.	—45 02	143 10	S.	48 46·2	46	N.E. by E.	1·917	+·012	1·929	1·923	
			N.	46 15	47		1·913	+·012	1·925		
			N.S.	22 05·9	47						
			S.	48 49·8	50	N.E. by E.	1·912	+·013	1·925		
			N.	46 25·1	48		1·901	+·013	1·914		
6.	—43 41	146 03	S.	50 01·4	60	N.E. ½ E.	1·820	+·018	1·838	1·892	Running along the land.
			N.	46 39·8	60		1·884	+·018	1·902		
			N.S.	23 16·8	59						
			wt. 6 grs.	32 58·5	58		1·887	+·018	1·905		
			wt. 5 grs.	26 29·7	58		1·919	+·018	1·937		
			wt. 4 grs.	21 21	59		1·881	+·018	1·899		
			wt. 3 grs.	15 59·4	59		1·850	+·018	1·868		
			wt. 2 grs.	10 27·2	58		1·885	+·018	1·903		
			wt. 1 gr.	5 14·2	58		1·870	+·018	1·888		

Observations of Declination made on board Her Majesty's Ship Terror, between November 15, 1840, and April 5, 1841.

The Observers are distinguished by their Initials as follows:—C. Captain Crozier; P. Lieut. Phillips; Cr. Mr. Cotter, Master.

1840.	Position. Lat.	Position. Long.	Observers.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Correction for index error.	True Declination.	Remarks.
	° ′	° ′		° ′		° ′	° ′	° ′	° ′	° ′	
Nov 15.	−44 24	152 58	Cr.	− 6 57	S.E. by E.	−71 40	−4 44	−11 41	+1 23	−11 38	Compass R. of Cummins, index error ascertained at Hobarton, June 1841.
	−44 24	152 58	Cr.	− 9 36	S.E. by E.		−4 44	−14 20			
16.	−46 05	154 18	C.	−10 52	S.E.	−72 00	−4 09	−15 01	+1 23	−13 47	
	−46 11	154 18	Cr.	−12 57	S.E.		−4 09	−17 06			
	−46 11	154 18	Cr.	− 9 48	S.E.		−4 09	−13 57			
	−46 24	154 50	Cr.	− 9 48	S.E. by E.		−4 49	−14 37			
18.	−49 06	160 10	C.	−11 12	S.E. by E. ½ E.	−73 00	−5 20	−16 32	+1 23	−14 44	
	−49 14	160 06	Cr.	−11 54	S.E. by E. ½ E.		−5 20	−17 14			
	−49 14	160 06	Cr.	− 9 39	S.E. by E. ½ E.		−5 20	−43 59			
	−49 40	160 52	C.	−11 23	S.E. by E. ½ E.		−5 20	−16 43			
	Auckland Island.										
Dec. 6.	−50 33	166 15	Cr.	−21 10	S.W. by W.	−73 10	+5 09	−16 01	+1 23	−15 29	
	At anchor.		Cr.	−21 12	S.W. by W.		+5 09	−16 03			
			Cr.	−22 48	S.W.		+4 27	−18 21			
8.			Cr.	−12 11	E.N.E.		−5 07	−17 18			
			Cr.	−21 59	S.W. by W.		+5 09	−16 50			
11.			Cr.	−21 47	N.W. by W.		+4 29	−17 18			
			Cr.	−20 32	N.W. by W.		+4 29	−15 03			
			C.	−19 32	W.N.W.		+5 07	−14 25			
			C.	−19 47	W.N.W.		+5 07	−14 40			
			C.	−20 14	N.W. by W.		+4 29	−15 45			
			C.	−19 23	N.W.		+3 46	−15 37			
			C.	−22 09	W. by N.		+5 35	−16 34			
			C.	−21 28	N.W. by W.		+4 29	−16 59			
			C.	−20 29	N.W. by W. ½ W.		+4 48	−15 41			
			C.	−23 00	W.		+5 49	−17 11			
			C.	−22 07	W. by N. ½ N.		+5 21	−16 46			
			C.	−22 05	W. by N.		+5 35	−16 30			
			C.	−21 59	W. ½ N.		+5 42	−16 17			
			C.	−22 36	W. ¼ S.		+5 50	−16 46			
			C.	−21 40	W.		+5 49	−15 51			
			C.	−20 54	N.W. by W.		+4 29	−16 25			
			C.	−21 50	W.N.W.		+5 07	−16 43			
			C.	−24 23	W. by N.		+3 35	−18 48			
			Cr.	−20 20	N.W. by W.		+4 29	−15 51			
			Cr.	−20 29	N.W. by W.		+4 29	−16 00			
			Cr.	−19 39	N.W.		+3 46	−15 53			
			Cr.	−21 02	W.N.W.		+5 07	−15 55			
			Cr.	−21 19	W.N.W.		+5 07	−16 12			
			Cr.	−22 12	W.N.W.		+5 07	−17 05			
			Cr.	−21 49	W. by N.		+5 35	−16 14			
			Cr.	−21 52	W. by N.		+5 35	−16 17			
			Cr.	−23 29	W.		+5 49	−17 40			
12.			C.	−12 41	N.E.		−3 46	−16 27			
			C.	−13 20	N.E. by N.		−2 57	−16 17			
			C.	−13 49	N.N.E.		−1 58	−15 47			
			C.	−13 18	E.S.E.		−5 36	−18 54			
			C.	−13 18	S.E. by E.		−5 09	−18 27			
			Cr.	−13 21	N.E.		−3 46	−17 07			
			Cr.	−15 34	N.N.E.		−1 58	−17 32			
			Cr.	−15 17	N.E.		−3 46	−19 03			
			Cr.	−11 15	E. by S.		−5 51	−17 06			
			Cr.	−12 32	E.S.E.		−5 36	−18 08			

Observations of Declination. (Continued.)

1840.	Position. Lat.	Position. Long.	Observers.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.		Correction for index error.	True Declination.	Remarks.
	° ′	° ′		° ′		° ′	° ′	° ′	° ′	° ′	° ′	
Dec. 12.	−50 32	167 45	C.	−14 02	S.E. by E.	−73 00	−5 06	−19 08				
13.	−52 30	169 50	C.	−13 23	S.E. by E.		−5 22	−18 45				
	−52 30	169 50	C.	−12 57	S.E. by E.		−5 22	−18 19				
16.	−52 34	169 50	Cr.	−22 21	W. by S.		+6 08	−16 13				
	−52 34	169 50	Cr.	−21 49	W.S.W.		+5 50	−15 59				
	−52 34	169 50	Cr.	−22 50	W.S.W.		+5 50	−17 00	−18 31	+1 23	−17 08	
	−52 34	169 50	Cr.	−23 01	S.W. by W.	−73 53	+5 21	−17 40				
	−52 34	169 50	Cr.	−23 10	S.W. by W.		+5 21	−17 49				
	−52 34	169 50	Cr.	−19 55	S.W.		+4 38	−15 15				
17.	−52 34	169 50	Cr.	−12 59	E.S.E.		−5 50	−18 49				
	−52 34	169 50	Cr.	−12 53	E.S.E.		−5 50	−18 43				
20.	−56 39	168 54	Cr.	−14 11	S.S.E.	−76 30	−2 58	−17 09				
21.	−57 33	170 30	C.	−21 54	S.S.E.		−3 06	−25 00				
	−57 33	170 30	C.	−21 06	S.S.E.		−3 06	−24 12				
	−57 33	170 30	C.	−20 28	S. by E.	−77 10	−1 36	−22 04				
	−57 33	170 30	C.	−23 45	S. by E.		−1 36	−25 21				
22.	−58 54	171 02	Cr.	−25 00	S. by E.		−1 44	−26 44	−23 21	+1 23	−21 58	
	−58 54	171 02	C.	−20 41	S. by E. ½ E.		−2 36	−23 17				
	−58 54	171 02	C.	−20 41	S.S.E.		−3 23	−24 04				
	−58 54	171 02	Cr.	−20 21	S.S.E.	−78 10	−3 23	−23 44				
	−59 04	171 00	C.	−26 54	S.S.W.		+3 23	−23 31				
	−59 04	171 00	C.	−25 15	S.S.W.		+3 23	−23 52				
	−59 09	170 45	C.	−26 34	S.S W.		+3 23	−23 11				
23.	−59 32	170 05	C.	−24 05	S.S.W. ½ W.		+4 17	−19 48				
	−59 32	170 05	Cr.	−17 24	S.E.		−6 23	−23 47				
	−59 32	170 05	Cr.	−16 38	S.E. by E.		−7 23	−24 01				
	−59 32	170 05	Cr.	−18 02	S.E. by S.		−5 03	−23 05				
	−59 32	170 05	Cr.	−21 02	S.S.E.		−3 31	−24 33				
	−59 32	170 05	Cr.	−23 36	S.		0 0	−23 36				
	−59 32	170 05	Cr.	−24 03	S. by W.	−78 30	+1 48	−22 15	−22 19	+1 23	−20 56	
	−59 32	170 05	Cr.	−26 39	S.S.W.		+3 31	−23 08				
	−59 32	170 05	Cr.	−26 52	S.W. by S.		+5 03	−21 49				
	−59 32	170 05	Cr.	−28 17	S.W.		+6 23	−21 54				
	−59 32	170 05	Cr.	−29 01	S.W. by W.		+7 23	−21 38				
	−59 32	170 05	Cr.	−28 11	W. by N.		+8 11	−20 00				
	−59 22	170 05	Cr.	−28 10	W.N.W.		+7 36	−20 34				
23.	−59 32	170 05	Cr.	−27 50	N.W. by W.		+6 45	−21 05				
	−59 32	170 05	Cr.	−26 47	N.W.		+5 41	−21 06				
	−59 32	170 05	Cr.	−25 49	N.W. by N.		+4 26	−21 23				
	−59 32	170 05	Cr.	−23 55	N. by W.		+1 33	−22 22				
	−59 32	170 05	Cr.	−21 34	N.	−78 30	0 0	−21 34	−21 43	+1 23	−20 20	
	−59 32	170 05	Cr.	−20 17	N. by E.		−1 33	−21 50				
	−59 32	170 05	Cr.	−18 32	N.N.E.		−3 02	−21 34				
	−59 32	170 05	Cr.	−18 22	N.E. by N.		−4 26	−22 48				
	−59 37	169 17	C.	−14 38	S.S.E. ¾ E.		−4 53	−19 31				
	−59 37	169 17	C.	−15 17	S.S.E. ¾ E.		−4 53	−20 10				
24.	−60 17	170 12	C.	−25 59	S.		0 0	−25 59				
	−60 17	170 12	C.	−23 38	S.S.E.		−3 41	−27 19				
	−60 17	170 12	C.	−22 25	S.E. by S.		−5 17	−27 42				
	−60 17	170 12	C.	−23 51	S.S.E.		−3 41	−27 32				
	−60 17	170 12	C.	−22 00	S.E. ½ S.	−79 00	−6 00	−28 00	−25 11	+1 23	−23 48	
	−60 35	170 34	Cr.	−18 19	S.E.		−6 41	−25 00				
	−60 35	170 34	Cr.	−17 57	S.E.		−6 41	−24 38				
	−60 35	170 34	Cr.	−21 50	S.S.E.		−3 41	−25 31				
	−60 35	170 34	Cr.	−21 14	S.S.E.		−3 41	−24 55				
	−60 35	170 34	Cr.	−20 40	S.E. by S.		−5 17	−25 57				

Observations of Declination. (Continued.)

1840.	Position. Lat.	Position. Long.	Observers.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.		Correction for index error.	True Declination.	Remarks.
	° ′	° ′		° ′		° ′	° ′	° ′	° ′	° ′	° ′	
Dec. 29.	−64 11	172 43	C.	−27 44	S. ½ E.		− 1 08	−28 52				
	−64 11	172 43	Cr.	−24 39	S. by E.		− 2 16	−26 55				
	−64 11	172 43	Cr.	−25 09	S. by E.		− 2 16	−27 25				
30.	−64 26	173 15	C.	−34 58	S.W.		+ 8 23	−26 35				
	−64 26	173 15	C.	−34 22	S.W.	−81 15	+ 8 23	−25 59	−27 15	+1 23	−25 52	
	−64 26	173 15	C.	−35 07	S.W. ½ S.		+ 7 30	−27 37				
	−64 26	173 15	C.	−32 54	S.S.W.		+ 4 34	−28 20				
	−64 48	172 56	Cr.	−25 15	S. by E.		− 2 16	−27 31				
	−64 48	172 56	Cr.	−34 20	S.W.		+ 8 23	−25 57				
31.	−65 42	172 13	C.	−26 09	S. ½ E.		− 1 10	−27 19				
	−65 42	172 13	C.	−26 13	S. by E.		− 2 24	−28 37				
	−65 42	172 13	C.	−25 23	S. by E.		− 2 24	−27 47				
	−65 42	172 13	Cr.	−26 26	S. by E.	−82 00	− 2 24	−28 40	−27 40	+1 23	26 17	
	−65 42	172 13	Cr.	−26 18	S. by E.		− 2 24	−28 42				
	−65 42	172 13	Cr.	−23 34	S. by E.		− 2 24	−25 58				
	−65 42	172 13	Cr.	−24 11	S. by E.		− 2 24	−26 35				
1841.												
Jan. 2.	−66 24	170 00	C.	−17 14	E. by S. ½ S.		−11 57	−29 11				
4.	−65 15	172 40	Cr.	−19 54	S.E.		− 9 09	−29 03				
	−65 15	172 40	Cr.	−20 48	S.E.		− 9 09	−29 57				
	−65 27	173 20	Cr.	−21 14	E. by S. ½ S.		−11 57	−33 11				
	−65 27	173 20	C.	−21 00	E. by S. ½ S.		−11 57	−32 57				
	−65 27	173 20	C.	−17 49	E. ½ S.		−12 13	−30 02				
	−65 27	173 20	C.	−19 17	E. by S. ½ S.	−82 00	−11 57	−31 14	−30 40	+1 23	−29 17	
	−65 30	173 30	C.	−20 04	E. by S. ½ S.		−11 57	−32 01				
	−65 30	173 30	C.	−21 11	E.S.E.		−11 44	−32 55				
	−65 31	173 40	C.	−22 19	S.E. by E.		−10 38	−32 57				
	−65 32	173 50	C.	−21 48	S.E. ½ E.		− 9 53	−31 41				
	−65 32	173 50	C.	−25 56	S.S.E. ½ E.		− 6 07	−32 03				
	−65 32	173 50	C.	−22 38	S.E. by E. ½ E.		−10 34	−33 12				
	−65 35	173 52	C.	−26 59	S.S.E.		− 4 41	−31 40				
	−65 35	173 52	C.	−26 54	S. by E.		− 2 18	−29 12				
	−65 35	173 52	C.	−25 22	S.S.E. ½ E.		− 5 45	−31 07				
	−65 35	173 52	C.	−25 54	S.S.E.		− 4 40	−30 34				
	−65 27	173 20	P.	−23 56	E. by S. ½ S.	−81 30	−11 16	−35 12	−31 05	+1 23	−29 42	
	−65 35	173 52	P.	−22 34	S.E. by E.		−10 02	−32 36				
	−65 28	173 20	Cr.	−18 25	E. by S.		−11 25	−29 50				
	−65 28	173 20	Cr.	−17 29	E.S.E.		−11 04	−28 33				
	−65 28	173 20	Cr.	−18 27	E.S.E.		−11 04	−29 31				
	−65 28	173 30	Cr.	−20 09	E.S.E.		−11 04	−31 13				
5.	−66 15	173 32	Cr.	−25 37	S.S.E.		− 4 41	−30 18				
6.	−68 07	175 12	Cr.	−30 21	S.S.E.		− 5 57	−36 18				
	−68 07	175 12	Cr.	−30 28	S.S.E.		− 5 57	−36 25				
7.	−68 30	175 30	Cr.	−24 25	S.E. by E.		−12 58	−37 43				
	−68 30	175 30	Cr.	−23 36	S.E. by E.		−12 58	−36 34				
	−68 30	175 30	Cr.	−23 42	S.E.		−11 00	−34 42				
	−68 30	175 30	Cr.	−23 12	E.S.E.	−83 30	−14 09	−37 21	−36 01	+1 23	−34 38	
	−68 30	175 30	Cr.	−47 46	S.W. by W.		+12 58	−34 48				
8.	−68 26	176 32	C.	−22 19	S.E. by E.		−12 58	−35 17				
	−68 26	176 32	C.	−20 36	S. 73° E.		−14 30	−35 06				
	−68 26	176 32	C.	−20 59	S. 85° E.		−14 56	−35 55				
11.	−70 53	173 00	C.	−45 31	S. ¼ E.		− 1 10	−46 41				
	−70 53	173 00	C.	−48 51	S. by W.		+ 4 43	−44 08				
	−70 53	173 00	C.	−43 10	S.		0 0	−43 10				
	−70 53	173 00	Cr.	−43 22	S.		0 0	−43 22				
	−70 53	173 00	Cr.	−44 57	S.	−85 50	0 0	−44 57	−46 48	+1 03	−45 45	A light card of Cummins, marked P, was now used. Index error ascertained at Hobarton, June 1841.

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Observers.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Correction for index error.	True Declination.	Remarks.
Jan. 11.	−71° 21′	171° 14′	Cr.	− 49° 10′	s. ½ w.	−85° 50′	+ 2° 20′	− 46° 50′	− 46° 48′	+1° 03′	− 45° 45′	A light card of Cummins, marked P, was now used. Index error ascertained at Hobarton, June 1841.
	−71 21	171 14	C.	− 51 03	s.		0 0	− 51 03				
	−71 21	171 14	C.	− 53 04	s. by w.		+ 4 43	− 48 21				
	−71 21	171 14	C.	− 54 21	s. by w.		+ 4 43	− 49 38				
	−71 21	171 14	C.	− 54 32	s. by w.		+ 4 43	− 49 49				
	−71 21	171 14	C.	− 53 11	s. by w.		+ 4 56	− 48 15				
	−71 21	171 14	C.	− 51 22	s.		0 0	− 51 22				
	−71 21	171 14	C.	− 51 33	s. by w.		+ 4 56	− 46 37				
	−71 21	171 14	C.	− 50 08	s. by w.		+ 4 56	− 45 12				
	−71 21	171 14	Cr.	− 52 01	s. by w.	−86 00	+ 4 56	− 47 05	− 47 55	+1 03	− 46 52	
	−71 21	171 14	Cr.	− 53 19	s. by w.		+ 4 56	− 48 23				
	−71 21	171 14	Cr.	− 53 18	s. by w.		+ 4 56	− 48 22				
	−71 21	171 14	Cr.	− 53 00	s. by w.		+ 4 56	− 48 04				
	−71 48	171 21	C.	− 50 53	s. by w.		+ 4 56	− 45 57				
	−71 48	171 21	C.	− 57 58	s.w. by s.		+14 14	− 43 44				
	−71 48	171 21	C.	− 53 25	s. by w. ½ w.		+ 7 22	− 48 03				
	−71 48	171 21	C.	− 27 35	e. by s. ½ s.		−24 22	− 51 57				
	−71 48	171 21	Cr.	− 52 46	s.s.w.		+ 9 48	− 42 58				
	−71 48	171 21	Cr.	− 54 17	s.s.w.		+ 9 48	− 44 29				
	−71 48	171 21	Cr.	− 53 06	s. by w.	−86 00	+ 4 56	− 48 10	− 47 43	+1 03	− 46 40	
	−71 48	171 21	Cr.	− 53 11	s. by w.		+ 4 56	− 48 15				
	−71 48	171 21	Cr.	− 25 06	e. by s.		−25 04	− 50 10				
	−71 48	171 21	Cr.	− 26 50	e. by s.		−25 04	− 51 54				
	−72 06	171 07	Cr.	− 58 11	s.s.w.		+ 9 48	− 48 23				
	−72 06	171 07	Cr.	− 58 27	s.s.w.		+ 9 48	− 48 39				
17.	−72 24	174 45	C.	− 35 06	s.e. by e.		−21 21	− 56 27				
	−72 25	174 50	C.	− 35 46	s.e. ½ e.		−19 44	− 55 30				
	−72 13	173 59	Cr.	− 35 00	s.e. by e.		−21 21	− 56 21				
	−72 13	173 59	Cr.	− 35 00	s.e. by e.		−21 21	− 56 21				
	−72 25	174 26	Cr.	− 34 37	s.e. by e.		−21 21	− 55 58				
	−72 25	174 26	Cr.	− 34 19	s.e. by e.	−86 00	−21 21	− 55 40	− 53 38	+1 03	− 52 35	
18.	−73 03	176 20	C.	− 64 55	s.w. by s.		+14 14	− 50 41				
	−73 03	176 20	Cr.	− 64 17	s.w. by s.		+14 14	− 50 03				
	−73 03	176 20	Cr.	− 65 46	s.w. by s.		+14 14	− 51 32				
	−73 03	176 20	Cr.	− 62 42	s.s.w. ½ w.		+12 00	− 50 42				
	−73 03	176 20	Cr.	− 64 56	s.w. by s.		+14 14	− 50 42				
19.	−72 34	173 21	C.	− 68 00	s.w. ¼ s.		+16 53	− 51 07				
	−72 34	173 21	C.	− 68 37	s.w.		+18 55	− 49 42				
	−72 33	173 10	C.	− 66 01	s.w.		−18 55	− 47 06				
	−72 33	173 10	C.	− 67 00	s.w. ¼ s.		+16 50	− 50 10				
	−72 32	172 27	Cr.	− 69 35	s.w.	−86 10	+18 55	− 50 40	− 49 52	+1 03	− 48 49	
	−72 32	172 27	Cr.	− 67 12	s.w. ½ s.		+16 53	− 50 19				
	−72 32	172 27	Cr.	− 67 40	s.w.		+18 55	− 48 45				
	−72 32	172 27	Cr.	− 67 57	s.w. ½ s.		+16 53	− 51 04				
	−72 31	172 47	C.	− 44 51	s.s.e. ½ e.		−12 30	− 57 21				
	−72 31	172 47	C.	− 44 23	s.s.e. ½ e.		−12 30	− 56 53				
	−72 31	172 47	Cr.	− 43 53	s.s.e.		−10 12	− 54 05				
	−72 31	172 47	Cr.	− 45 36	s.s.e.		−10 12	− 55 48				
	−72 31	172 47	Cr.	− 49 19	s. by e.	−86 10	− 5 08	− 54 27	− 55 37	+1 03	− 54 34	
	−72 31	172 47	Cr.	− 54 17	s.		0 0	− 54 17				
	−72 31	172 47	Cr.	− 53 18	s.		0 0	− 53 18				
	−72 52	172 20	P.	− 48 34	s.s.e.		−10 12	− 58 46				
22.	−73 51	171 50	C.	− 34 19	e. by s.		−32 26	− 66 45				
	−73 51	171 50	C.	− 35 58	e. by s. ¼ s.		−31 56	− 67 44				
	−73 52	170 40	P.	44 12	n.e. ½ e.		−24 30	− 68 42				
	−73 44	171 03	Cr.	− 40 41	n.e. by n.	−86 50	−17 23	− 58 04	− 66 44	+1 03	− 65 41	

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Observers.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.		Correction for index error.	True Declination.	Remarks.
Jan. 22.	−73° 46′	171° 25′	Cr.	− 42° 16′	N.E. ½ N.	−86° 50′	−24° 30′	− 66° 46′	− 66° 44′	+1° 03′	− 65° 41′	
	−73 46	171 25	Cr.	− 43 41	N.E. ½ N.		−24 30	− 68 11				
	−73 46	171 25	Cr.	− 36 51	E.N.E.		−29 58	− 66 49				
	−73 46	171 25	Cr.	− 36 16	E.N.E.		−29 58	− 66 14				
	−73 46	171 25	Cr.	− 36 32	E. by N.		−32 03	− 68 35				
	−73 46	171 25	Cr.	− 36 26	E. by N.		−32 03	− 68 29				
	−73 46	171 35	Cr.	− 36 14	E.		−31 04	− 67 18				
	−73 46	171 35	Cr.	− 36 12	E.		−31 04	− 67 16				
	−73 46	171 35	Cr.	− 36 50	E.		−31 04	− 67 54				
	−73 46	171 35	Cr.	− 35 47	E. by S.		−30 36	− 66 23				
	−73 59	171 40	C.	− 62 48	S.	−86 40	0 0	− 62 48	− 65 15	+1 03	− 64 12	
	−73 59	171 40	C.	− 63 52	S.		0 0	− 63 52				
	−74 03	171 40	C.	− 62 41	S.		0 0	− 62 41				
	−74 03	171 40	C.	− 63 47	S.		0 0	− 63 47				
	−74 04	173 09	C.	− 40 33	E. by S.		−27 31	− 68 04				
	−74 04	172 43	C.	− 40 47	E. by S.		−27 31	− 68 18				
	−74 04	172 43	Cr.	− 38 47	E. by S.	−86 20	−27 31	− 66 18	− 66 07	+1 03	− 65 04	
23.	−73 55	172 46	Cr.	− 62 02	S.		0 0	− 62 02				
	−73 59	171 32	Cr.	− 38 22	E. by S.		−27 31	− 65 33				
25.	−74 24	168 28	C.	− 77 13	S.S.W.		+13 46	− 63 27				
	−74 24	168 28	C.	− 81 13	S.S.W.		+13 46	− 67 27				
	−74 24	168 28	Cr.	− 80 24	S.S.W.		+13 46	− 66 38				
	−74 28	168 46	Cr.	− 39 28	E.S.E.	−87 10	−34 13	− 73 41	− 69 43	+1 03	− 68 40	
	−74 28	168 46	Cr.	− 38 39	E.S.E.		−34 13	− 72 52				
	−74 28	168 46	Cr.	− 39 57	E.S.E.		−34 13	− 74 10				
	−74 50	168 45	C.	− 43 23	E. by S.		−46 49	− 90 12				
	−75 37	168 28	C.	−102 27	S. by W.	−87 40	− 8 23	− 94 04				
26.	−74 45	168 48	Cr.	− 33 53	E. ½ S.		−47 08	− 81 01				
27.	−75 40	168 28	C.	− 53 33	E.S.E.		−36 33	− 90 06				
	−75 40	168 28	C.	− 56 14	E.S.E.		−36 33	− 92 47	− 91 47	+1 03	− 90 44	
	−75 40	168 28	C.	− 60 19	E.S.E.		−36 33	− 96 52				
	−75 40	168 28	Cr.	− 55 50	E.S.E.	−87 20	−36 33	− 92 23				
	−75 40	168 28	Cr.	− 56 52	E.S.E.		−36 33	− 93 25				
	−75 40	168 28	Cr.	− 58 39	E.S.E.		−36 33	− 95 12				
	−75 58	168 50	C.	− 72 06	S.E. ½ E.	−87 60	−28 16	−100 22	−100 44	+1 03	− 99 41	
	−75 58	168 50	C.	− 73 11	S.E. ½ E.		−28 16	−101 27				
28.	−76 47	169 26	C.	− 72 17	E. ¾ S.	−87 10	−36 36	−108 53	−108 08	+1 03	−107 05	
	−76 47	169 26	C.	− 70 45	E. by S.		−36 38	−107 23				
	−77 17	171 38	C.	− 81 31	E. ½ S.		−34 42	−116 13				
	−77 22	172 00	C.	− 80 29	E. ½ S.	−87 00	−34 42	−115 01	−115 24	+1 03	−114 21	
	−77 30	172 20	C.	−119 58	N. ¾ W.		+ 4 46	−115 12				
	−77 17	172 20	C.	−116 46	N. ¼ W.		+ 1 35	−115 11				
29.	−77 47	176 23	P.	− 98 39	N. by E.		− 6 21	−105 00				
	−77 47	176 23	P.	− 94 04	N. by E.		− 6 21	−100 25				
	−77 47	176 14	Cr.	−100 48	N.	−87 00	0 0	−100 48	−103 12	+1 03	−102 09	
	−77 46	176 38	C.	−123 50	N.W. by N.		+18 23	−105 27				
	−77 46	176 00	C.	−110 43	N. by W.		+ 6 21	−104 22				
31.	−77 06	187 30	Cr.	− 65 19	N.E.		−17 26	− 82 45				
	−77 06	187 42	C.	− 64 40	N.E.		−17 26	− 82 06				
Feb. 1.	−77 03	189 03	C.	− 76 06	S.E. by S.	−86 00	−14 14	− 90 20	− 86 12	+1 03	− 85 09	
	−77 03	189 03	C.	− 74 36	S.E. by S.		−14 14	− 88 50				
	−77 03	189 03	C.	− 77 11	S.S.E.		−19 48	− 86 59				
2.	−77 45	187 08	C.	− 74 47	S. 62° E.		−21 00	− 95 47				
	−77 45	187 08	C.	− 75 23	S.E. by E.		−20 29	− 95 52				
	−77 45	187 08	C.	− 76 56	S.E. by E.		−20 29	− 97 25				
	−77 45	187 08	C.	− 77 48	S. 50° E.	−85 50	−18 56	− 96 44	− 96 24	+1 03	− 95 21	

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Observers.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Correction for index error.	True Declination.	Remarks.
Feb. 2.	−77° 41′	187° 02′	P.	− 75° 39′	E. by S. ½ S.	−85° 50′	−23° 22′	− 99° 01′	− 96 24	+1° 03′	− 95° 21′
	−77 41	187 02	P.	− 73 43	E. by S. ½ S.		−23 22	− 97 05			
	−77 41	187 02	P.	− 74 56	S.E. ½ E.		−18 56	− 93 52			
	−77 43	187 01	C.	− 74 57	S.E. by E.		−20 29	− 95 26			
	−77 45	189 00	C.	−115 08	N. 74° W.		+23 07	− 92 01			
	−77 45	189 00	C.	−118 10	N. 80° W.		+24 00	− 94 10			
	−77 45	189 00	C.	− 77 37	N. 56° E.		−19 50	− 97 27			
	−77 45	189 00	C.	− 76 48	S. 56° E.	−85 50	−20 29	− 97 17	− 96 02	+1 03	− 94 59
	−77 45	189 00	C.	− 75 16	E.S.E.		−22 41	− 97 57			
	−77 45	189 00	C.	− 74 39	E.S.E.		−22 41	− 97 20			
	−77 58	186 50	C.	− 77 31	S. 83° E.		−25 15	−102 46			
	−77 58	186 50	C.	− 76 06	S. 75° E.		−21 30	− 97 36			
	−77 58	186 50	Cr.	− 73 42	E. by S.	−86 00	−25 04	− 98 46	− 98 14	+1 03	− 97 11
3.	−77 22	185 00	C.	−119 49	S. 74° W.		+21 49	− 98 00			
	−77 22	185 00	C.	−117 43	S. 67° W.		+23 39	− 94 04			
4.	−76 56	192 19	C.	− 77 32	S. 10° E.		− 4 31	− 82 03			
	−76 56	192 19	C.	− 59 49	N.E. by E. ½ E.		−20 10	− 79 59			
	−76 56	192 19	Cr.	− 62 37	E.N.E.		−21 18	− 83 55			
	−77 04	192 02	C.	− 62 30	E. by N.		−22 48	− 85 18			
	−77 04	192 02	C.	− 63 34	E. by N. ¾ N.		−21 40	− 85 14			
	−77 04	192 02	Cr.	− 61 20	E.N.E.		−21 18	− 82 38			
5.	−77 09	192 30	C.	− 96 17	S.S.W. ½ W.	−85 40	+11 12	− 85 05	− 84 06	+1 03	− 83 03
	−77 09	192 30	C.	− 88 25	S. by W.		+ 4 31	− 83 54			
	−77 09	192 30	C.	− 83 24	S. ¼ E.		− 1 05	− 84 29			
	−77 09	192 30	C.	− 65 46	N.E. by E. ½ E.		−20 10	− 85 56			
	−77 12	192 30	P.	− 62 30	E. ½ N.		−23 06	− 85 36			
	−77 15	192 40	P.	− 64 04	E. ¾ N.		−22 57	− 87 01			
	−77 20	192 30	Cr.	− 93 11	S.S.W.		+ 9 03	− 82 08			
6.	−76 57	188 24	C.	− 88 27	S. ¾ W.		+ 3 42	− 84 45			
	−76 57	188 24	C.	− 86 19	S. ½ W.		+ 2 28	− 83 51			
	−76 57	188 24	C.	− 61 44	E.N.E.		−23 10	− 84 54			
	−76 57	188 24	C.	− 62 49	E. by N. ½ N.		−24 00	− 86 49			
	−76 57	188 24	C.	− 82 24	S. ¾ E.	−86 00	− 3 42	− 86 06	− 84 27	+1 03	− 83 24
	−76 57	188 24	C.	− 93 19	S. by W. ¾ W.		+ 8 35	− 84 44			
	−76 57	188 24	P.	− 87 16	S. ½ W.		+ 2 28	− 84 48			
	−76 57	189 00	Cr.	− 84 11	S.		0 0	− 84 11			
	−76 59	188 45	Cr.	− 87 13	S. by W. ½ W.		+ 7 22	− 79 51			
7.	−76 56	186 21	C.	− 95 43	S. by W. ½ W.		+ 7 22	− 88 21			
	−76 56	186 21	C.	− 61 53	E.		−25 25	− 87 18			
	−76 56	186 21	C.	− 63 01	E.		−25 25	− 88 26			
	−76 56	186 21	C.	− 63 08	E. ¼ N.		−25 06	− 88 14			
	−77 10	187 10	Cr.	− 92 37	S. by W. ¾ W.		+ 8 35	− 84 02			
	−77 07	186 50	C.	− 72 58	S.E. by E. ½ E.	−86 00	−22 30	− 95 28	− 90 40	+1 03	− 89 37
	−77 07	186 50	C.	− 70 33	E.S.E.		−23 39	− 94 12			
	−77 07	186 50	C.	− 77 19	S.E. ¾ S.		−15 12	− 92 31			
	−77 07	186 50	C.	− 75 44	S.E.		−18 07	− 93 51			
	−77 07	186 50	Cr.	− 76 11	S.E.		−18 07	− 94 18			
8.	−77 30	186 20	C.	− 65 18	E. ½ S.		−25 15	− 90 33			
	−77 32	186 30	C.	− 69 25	E. ¼ N.		−25 16	− 94 41			
	−77 32	186 30	C.	− 69 20	E. ½ N.		−25 07	− 94 27			
	−77 32	186 30	C.	− 69 39	E. ½ N.		−25 07	− 94 46			
	−77 32	186 30	C.	− 70 52	E. by N. ¾ N.	−86 00	−23 35	− 94 27	− 94 27	+1 03	− 93 24
	−77 31	186 17	Cr.	− 72 06	S.E. by E. ¾ E.		−23 04	− 95 10			
	−77 37	186 30	Cr.	− 68 35	E.		−25 25	− 94 00			
	−77 46	187 22	P.	− 72 52	E.N.E.		−23 10	− 96 02			
	−77 52	187 40	Cr.	− 74 04	N.E. by E. ½ E.		−21 56	− 96 00			

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Observers.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Correction for index error.	True Declination.	Remarks.
	° ′	° ′		° ′		° ′	° ′	° ′	° ′	° ′	
Feb. 9.	−77 54	190 50	C.	−108 41	S.W. by S.		+14 14	− 94 27			
	−77 54	190 50	C.	−106 37	S.W. by S.		+14 14	− 92 23			
	−77 54	190 50	Cr.	−107 42	S.S.W. ½ W.		+12 01	− 95 41			
	−77 54	190 50	Cr.	−110 45	S.W. by S.	−86 00	+14 14	− 96 31	− 95 45	+1 03	− 94 42
	−77 53	189 25	P.	−110 56	S.S.W. ½ W.		+12 01	− 98 55			
10.	−77 42	188 00	Cr.	−114 10	S.W. ¾ W.		+15 12	− 98 58			
	−77 43	187 07	P.	−111 30	S.W.		+18 07	− 93 23			
14.	−76 26	177 19	C.	−101 52	S.S.W.	−87 00	+13 01	− 88 51	− 89 58	+1 03	− 88 55
	−76 25	177 50	Cr.	−104 06	S.S.W.		+13 01	− 91 05			
15.	−76 31	168 30	C.	− 82 26	S.S.E. ¾ E.		−22 47	−105 13			
16.	−76 30	166 15	C.	− 67 30	S.E.		−32 02	− 99 32			
	−76 30	166 15	C.	− 65 14	E. by S.		−46 49	−112 03			
	−76 30	166 15	C.	− 70 38	E. by S.		−46 49	−117 27			
	−76 30	166 15	C.	− 74 30	E. ½ N.	−87 40	−46 47	−111 17	−112 47	+1 03	−111 44
	−76 30	166 15	C.	− 82 25	N.E. by E.		−37 36	−120 01			
	−76 30	166 15	P.	− 73 22	E. ½ N.		−46 47	−120 09			
	−76 30	166 15	Cr.	− 66 43	E. by S. ¾ S.		−44 28	−111 11			
	−76 39	166 20	C.	− 72 58	E. by S. ½ S.		−45 14	−118 12			
18.	−76 05	166 30	C.	−144 55	W. by N. ½ N.		+45 20	− 99 35			
	−76 05	166 30	C.	−131 51	N.W.		+31 21	−100 30			
	−76 00	167 00	C.	−140 50	N.W. by W.	−87 40	+37 36	−103 14	−101 17	+1 03	−100 14
	−76 05	165 49	Cr.	− 51 37	E.		−47 27	− 99 04			
	−76 05	165 49	C.	− 56 46	E. ¼ S.		−47 17	−104 03			
	−76 00	167 00	C.	−129 44	W.N.W.		+42 44	− 87 00			
19.	−75 12	168 30	C.	−100 16	S. ¾ W.	−87 40	+ 6 05	− 94 11	− 90 35	+1 03	− 89 32
	−74 51	168 10	C.	−110 40	S.W.		+38 02	− 72 38			
	−74 51	168 10	C.	−109 33	S.W.		+38 02	− 71 31			
	−74 51	168 10	C.	−110 11	S.W.	−88 00	+38 02	− 72 09	− 71 55	+1 03	− 70 52
	−74 51	168 10	Cr.	−109 24	S.W.		+38 02	− 71 22			
20.	−72 22	171 11	Cr.	− 72 08	W. by N.	−86 20	+27 13	− 44 55			
22.	−70 22	170 00	C.	− 19 00	E.N.E.		−21 18	− 40 18			
	−70 20	166 50	Cr.	− 21 22	E. by N.		−22 48	− 44 10			
24.	−70 22	167 12	C.	− 45 30	S. ¼ E.		− 1 07	− 46 37			
	−70 32	167 34	Cr.	− 59 52	W. by N. ¾ N.		+21 40	− 38 12			
	−70 32	167 34	Cr.	− 57 07	N.W. ¼ W.		+16 48	− 40 19	− 38 44	+1 03	− 37 41
25.	−70 09	167 20	C.	− 48 07	N.W. ¾ N.	−85 40	+13 34	− 34 33			
	−70 09	167 20	C.	− 46 51	N.W.		+16 03	− 30 48			
	−70 03	167 30	C.	− 51 55	N.W. ½ W.		+17 32	− 34 23			
	−70 03	167 30	C.	− 50 19	N.W. by W.		+19 01	− 31 18			
	−70 03	167 30	C.	− 46 14	S. by W. ½ W.		+ 5 38	− 40 36			
26.	−69 51	167 50	C.	− 53 54	W. by S.		+22 06	− 31 48			
	−69 51	167 50	C.	− 53 23	W. by S. ½ S.		+21 30	− 31 53			
	−68 48	167 42	Cr.	− 55 05	W. by S.		+22 06	− 32 59			
	−68 48	167 42	Cr.	− 51 31	W. by S. ½ S.	−85 30	+21 48	− 29 43	− 37 09	+1 03	− 36 06
27.	−69 26	167 40	Cr.	− 47 25	S. by W.		+ 4 20	− 43 05			
28.	−69 55	167 30	Cr.	− 39 10	S. by E. ½ E.		− 6 31	− 45 41			
Mar. 1.	−69 01	168 00	Cr.	− 36 08	S.S.E.		− 8 43	− 44 51			
2.	−68 10	167 37	C.	− 45 52	W. by N. ½ N.		+15 28	− 30 24			
	−68 10	167 37	C.	− 45 17	N.W.by W. ½ W.		+14 15	− 31 02			
	−68 10	167 37	C.	− 46 45	W.N.W.		+14 56	− 31 49			
	−68 19	167 50	Cr.	− 46 49	W. by N.	−84 00	+16 01	− 30 48	− 28 09	+1 03	− 27 06
5.	−65 32	167 20	C.	− 28 22	S. by W. ½ W.		+ 4 53	− 23 29			
	−65 32	167 20	C.	− 26 58	S. by W.		+ 3 17	− 23 41			
	−65 32	167 40	C.	− 32 43	S. by W. ½ W.		+ 4 53	− 27 50			
	−65 32	167 40	C.	− 32 48	S.S.W.		+ 6 29	− 26 19			

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Observers.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Correction for index error.	True Declination.	Remarks.
	° ′	° ′		° ′		° ′	° ′	° ′	° ′	° ′	
Mar. 6.	−65 50	164 40	C.	−37 12	S.S.W. ½ W.		+ 7 36	−29 36			
	−65 50	164 40	C.	−35 02	S.S.W.		+ 6 12	−28 50			
	−65 50	164 40	C.	−34 22	S.S.W.		+ 6 12	−28 10			
	−65 50	164 40	C.	−33 23	S. by W. ½ W.		+ 4 40	−28 43			
	−65 50	164 40	C.	−38 53	S.W. by S.	−83 45	+ 8 59	−29 54	−27 59	+1 03	−26 56
	−65 50	164 40	C.	−39 02	S.W. ½ S.		+10 13	−29 08			
	−65 50	164 40	Cr.	−38 29	S.W.		+11 27	−27 02			
	−65 47	164 30	C.	−40 08	W. ¾ N.		+15 23	−24 35			
	−65 50	164 37	Cr.	−42 20	W. ½ S.		+15 35	−26 45			
7.	−65 34	162 08	C.	−29 08	N. by W. ½ W.		+ 4 08	−25 00			
	−65 34	162 08	C.	−27 42	N. by W. ½ W.		+ 4 08	−23 34			
	−65 34	162 08	C.	−29 19	N.N.W.		+ 5 31	−23 48			
	−65 34	162 08	C.	−36 28	N.W.	−83 30	+10 19	−26 09	−24 50	+1 03	−23 47
	−65 34	162 08	C.	−16 26	S.E. by E.		−12 58	−29 26			
	−65 34	162 08	Cr.	−25 28	N. by W. ½ W.		+ 4 08	−26 08			
8.	−64 44	162 20	C.	−25 24	N. by E. ½ E.		− 3 49	−29 13			
	−64 44	162 20	C.	−23 05	N.N.E.		− 5 07	−28 12			
	−64 44	162 20	C.	−20 49	N.N.E. ½ E.		− 6 18	−27 07			
	−64 44	162 20	C.	−19 40	N.E. ½ N.		− 8 31	−28 11			
	−64 44	162 20	Cr.	−18 01	N.E. ½ E.		−10 32	−28 33			
9.	−64 20	164 34	C.	−30 53	S. by W.	−83 00	+ 2 43	−28 10	−28 01	+1 03	−26 58
	−64 20	164 34	C.	−31 16	S. by W. ¼ W.		+ 3 25	−27 51			
	−64 23	164 15	C.	−33 23	S.S.W. ½ W.		+ 6 48	−26 35			
	−64 23	164 15	C.	−32 17	S.S.W. ¼ W.		+ 6 10	−26 07			
	−64 22	164 30	Cr.	−31 51	S. by W.		+ 2 43	−29 08			
11.	−64 10	163 00	C.	−34 24	N.W. ½ W.		+10 32	−23 52			
	−64 10	163 00	C.	−32 34	N.W. ½ W.		+10 32	−22 02			Card R substituted.
	−64 18	163 15	Cr.	−33 14	N.W. by W.		+11 30	−21 44			
	−64 18	163 15	Cr.	−32 42	N.W.	−83 00	+ 9 34	−23 08	−24 11	+1 23	−22 48
	−64 00	163 00	C.	−33 44	N.N.W. ½ W.		+ 6 17	−27 27			
	−64 00	163 00	C.	−35 55	S.W. ¾ S.		+ 9 06	−26 49			
	−64 00	163 00	C.	−35 23	S.W. ¾ S.		+ 9 06	−24 17			
	−64 04	162 40	C.	−36 53	S.W. by W.		+12 00	−24 53			
	−64 04	162 40	C.	−37 54	S.W. by W. ½ W.		+12 34	−25 20			
	−64 04	162 40	C.	−38 41	W.S.W.		+13 09	−25 32			
12.	−64 04	160 53	C.	−34 41	W. ½ S.	−83 00	+13 51	−20 50	−23 42	+1 23	−22 19
	−64 04	160 53	C.	−34 28	W. by S.		+13 48	−20 40			
	−64 07	161 20	C.	−29 30	S.S.W. ½ W.		+ 6 48	−22 42			
	−64 07	161 20	C.	−37 55	S.W. by W.		+12 00	−25 55			
14.	−62 49	157 00	C.	−22 39	S.S.E.		− 5 24	−28 03			
	−62 49	157 00	C.	−22 32	S.S.E.		− 5 24	−27 56			
	−62 49	157 00	C.	−21 53	S. by E. ½ E.		− 4 00	−25 53			
	−62 49	157 00	C.	−22 42	S. by E. ¾ E.	−82 45	− 4 42	−27 24	−28 12	+1 23	−26 49
	−62 49	157 00	Cr.	−24 05	S.S.E.		− 5 24	−29 29			
	−62 55	157 07	Cr.	−25 07	S.S.E.		− 5 24	−30 31			
	−62 55	157 07	Cr.	−22 42	S.S.E.		− 5 24	−28 06			
18.	−63 50	151 35	C.	−21 06	S. by W.		+ 3 06	−18 00			
	−63 50	151 35	C.	−17 35	S. ½ E.		− 1 30	−18 05			
	−63 50	151 35	C.	−14 57	S. by E. ½ E.		− 4 30	−19 27			
	−63 50	151 35	C.	−14 47	S.S.E.		− 6 12	−20 59			
	−63 50	151 35	C.	−17 05	S. by E. ¼ E.		− 3 50	−20 55			
	−63 50	151 35	C.	−21 27	S. ½ W.	−83 45	+ 1 30	−19 57	−19 54	+1 23	−18 31
	−63 50	151 35	C.	−29 36	S.W.		+11 27	−18 09			
	−63 50	151 35	C.	−22 16	S. ½ W.		+ 1 30	−20 46			
	−63 50	151 35	Cr.	−19 32	S. ½ E.		− 1 30	−21 02			
	−63 50	151 35	Cr.	−15 30	S.S.E.		− 6 12	−21 42			

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Observers.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.		Correction for index error.	True Declination.	Remarks.
	° ′	° ′		° ′		° ′	° ′	° ′		° ′	° ′	
Mar. 19.	−64 15	149 00	C.	−24 28	S.W. $\frac{1}{2}$ S.		+11 11	−13 17				
	−64 15	149 00	C.	−24 03	S.S.W. $\frac{3}{4}$ W.		+ 9 05	−14 58				
	−64 15	149 00	C.	−17 37	S.S.W.		+ 6 45	−10 52				
	−64 15	149 00	C.	−23 31	S.S.W. $\frac{1}{2}$ W.	−84 15	+ 8 19	−15 12	−15 22	+1 23	−13 59	
	−64 15	149 00	Cr.	−28 00	S.W. by S.		+ 9 50	−18 10				
	−64 15	149 00	Cr.	−25 51	S.W. by S.		+ 9 50	−16 01				
	−64 27	148 12	C.	−28 51	S.W. by S.		+ 9 50	−19 01				
21.	−64 05	140 00	C.	−21 49	W. $\frac{1}{2}$ N.		+16 13	− 5 36				
	−64 05	140 00	C.	−21 13	W. by N.		+16 01	− 5 12				
22.	−63 10	139 30	C.	−17 14	N.W. $\frac{1}{2}$ W.		+12 25	− 4 49				
	−63 10	139 30	C.	−15 50	N.W. $\frac{1}{2}$ N.		+10 02	− 5 48				
	−63 10	139 30	C.	−18 22	N.W. $\frac{1}{4}$ W.	−84 00	+11 51	− 6 31	− 4 52	+1 23	− 3 29	
	−63 06	139 40	C.	−16 01	N.W. by W.		+13 34	− 2 27				
	−63 06	139 40	C.	−17 47	N.W. $\frac{1}{2}$ W.		+12 25	− 5 22				
	−63 06	139 40	C.	−15 36	N.W. $\frac{1}{2}$ W.		+12 25	− 3 11				
23.	−62 25	136 30	C.	−11 46	N.W. by N.		+18 24	− 3 22				
	−62 25	136 30	C.	−12 04	N.W. $\frac{1}{4}$ W.		+11 20	− 0 44				
	−62 05	136 00	C.	−13 15	W. by N. $\frac{1}{4}$ N.	−83 45	+15 02	+ 1 47	+ 0 12	+1 23	+ 1 35	
	−62 05	136 00	C.	−14 54	W. by N.		+15 17	+ 0 23				
	−62 05	136 00	C.	−11 20	W.N.W.		+14 16	+ 2 56				
25.	−60 23	131 38	C.	− 2 53	N.W. $\frac{1}{2}$ N.		+ 8 43	+ 5 50				
	−60 23	131 38	C.	− 0 35	N.W. $\frac{1}{2}$ N.		+ 8 43	+ 8 08				
	−60 23	131 38	C.	− 3 15	N.W. $\frac{1}{2}$ N.		+ 8 43	+ 5 28				
	−60 23	131 38	C.	− 4 53	N.W. $\frac{1}{2}$ W.		+10 48	+ 5 55				
	−60 23	131 38	C.	− 4 12	N.W.		+ 9 48	+ 5 36				
	−60 23	131 38	C.	− 2 17	N.W. $\frac{1}{2}$ N.	−83 10	+ 8 43	+ 6 26	+ 6 52	+1 23	+ 8 15	
	−60 23	131 38	C.	− 2 24	N.W. $\frac{1}{2}$ N.		+ 8 43	+ 6 19				
	−60 23	131 38	C.	− 2 34	N.W. $\frac{1}{2}$ N.		+ 9 15	+ 6 41				
	−60 33	131 37	Cr.	− 0 41	N.W.		+ 9 48	+ 9 07				
	−60 33	131 37	Cr.	− 1 58	N.W.		+ 9 48	+ 7 50				
	−60 23	131 38	Cr.	− 1 34	N.W.		+ 9 48	+ 8 14				
	−60 20	131 30	C.	− 5 54	W. by N. $\frac{1}{2}$ N.		+13 06	+ 7 12				
	−60 20	131 30	C.	+ 8 02	N. $\frac{1}{2}$ W.		+ 1 15	+ 9 17				
	−60 20	131 30	C.	− 3 25	N.W.byW. $\frac{1}{2}$ W.		+12 05	+ 8 40				
	−60 20	131 30	C.	+ 8 30	N. $\frac{3}{4}$ W.		+ 1 53	+10 23				
	−60 20	131 30	C.	+ 8 05	N. $\frac{3}{4}$ W.		+ 1 53	+ 9 58				
	−60 20	131 30	C.	− 1 55	N.W.byW. $\frac{1}{4}$ W.	−83 00	+11 48	+ 9 53	+ 9 00	+1 23	+10 23	
	−60 20	131 30	C.	+12 22	N.N.E.		− 5 07	+ 7 15				
	−60 20	131 30	C.	+19 22	N.E. by N.		− 7 28	+11 54				
	−60 20	131 30	C.	+13 35	N.N.E.		− 5 07	+ 8 28				
	−60 20	131 30	C.	− 4 58	N.W.byW. $\frac{1}{2}$ W.		+12 05	+ 7 07				
26.	−59 24	129 46	C.	− 0 17	N.W. $\frac{1}{2}$ N.		+ 8 15	+ 7 58				
	−59 12	129 40	C.	+ 7 47	N. $\frac{3}{4}$ W.		+ 1 49	+ 9 36				
	−59 12	129 40	C.	+ 4 29	N. by W. $\frac{1}{4}$ W.		+ 3 03	+ 7 32				
	−59 12	129 40	C.	+ 2 34	N.N.W. $\frac{1}{4}$ W.	−82 45	+ 5 32	+ 8 06	+ 8 44	+1 23	+10 07	
	−59 12	129 40	C.	+ 1 08	N.N.W. $\frac{3}{4}$ W.		+ 6 41	+ 7 49				
	−59 12	129 40	C.	+ 5 05	N.N.W.		+ 4 58	+10 03				
27.	−58 00	129 45	C.	+10 02	N.		0 0	+10 02				
28.	−57 22	127 40	C.	− 4 55	W. by S. $\frac{3}{4}$ S.		+11 30	+ 6 35				
	−57 22	127 40	C.	− 3 41	W. by S.		+11 48	+ 8 07				
	−57 22	127 40	C.	− 2 00	W. $\frac{1}{2}$ S.		+11 49	+ 9 49				
	57 22	127 40	C.	+14 24	E. by N. $\frac{3}{4}$ N.	−81 45	−11 04	+ 3 20	+ 7 14	+1 23	+ 8 37	
	−57 22	127 40	Cr.	− 2 19	W. $\frac{1}{2}$ N.		+11 47	+ 9 28				
	−57 22	127 40	Cr.	− 0 44	W. $\frac{1}{2}$ N.		+11 47	+11 03				
	−57 22	127 40	C.	+12 27	N.E. $\frac{1}{2}$ E.		− 8 58	+ 3 29				
	57 22	127 40	C.	+14 56	N.E. $\frac{1}{2}$ E.		− 8 58	+ 5 58				

Observations of Declination. (Continued.)

1841.	Position. Lat.	Position. Long.	Observers.	Declination observed.	Direction of ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.	Correction for index error.	True Declination.	Remarks.
	° ′	° ′		° ′		° ′	° ′	° ′	° ′	° ′	
Mar. 29.	−56 35	129 50	C.	+15 58	N.E. by E. ½ E.		− 9 41	+ 6 17			
	−56 35	129 50	C.	+10 23	N.E. ½ E.		− 8 25	+ 1 58			
	−56 35	129 50	C.	+14 24	N.E.		− 7 41	+ 6 43			
	−56 44	129 37	Cr.	+11 40	E. by N.	−81 15	−11 01	+ 0 39	+ 3 58	+1 23	+5 21
	−56 47	129 30	Cr.	+11 35	N.E. by N.		− 6 00	+ 5 35			
	−56 47	129 30	Cr.	+ 9 11	N.E. by N.		− 6 00	+ 3 11			
	−56 30	130 10	C.	+ 8 56	N.E. E. ¾ E.		− 5 31	+ 3 25			
30.	−55 12	132 00	C.	+ 7 38	N.E. by E. ½ E.		− 8 38	− 1 00			
	−55 12	132 00	C.	+ 1 47	N.E.		− 6 50	− 5 03			
	−55 12	132 00	C.	+ 4 15	N.E. ½ N.		− 6 05	− 1 50			
	−55 12	132 00	C.	+ 5 18	N.E. ½ N.	−80 20	− 6 05	− 0 47	− 0 38	+1 23	+0 45
	−55 12	132 00	C.	+ 8 28	N.E.		− 6 50	+ 1 38			
	−55 12	132 00	C.	+ 2 52	N.E. by N.		− 5 20	− 2 28			
	−55 12	132 00	Cr.	+ 7 20	N. by E. ¾ E.		− 3 13	+ 4 07			
	−55 04	132 10	C.	+ 2 37	N. ½ E.		− 0 50	+ 1 47			
	−55 04	132 10	C.	+ 8 00	N.E. by E.		− 8 24	− 0 24			
	−55 04	132 10	C.	+ 2 37	N.N.E. ½ E.	−80 20	− 4 40	− 2 03	− 1 07	+1 23	+0 16
	−55 04	132 10	C.	−00 04	N. ¾ E.		− 1 26	− 1 22			
	−55 04	132 10	C.	+ 3 45	N.E. ¼ E.		− 7 18	− 3 33			
	−54 56	132 15	C.	+ 4 43	N.E. by N.		− 5 32	− 0 49			
	−54 56	132 15	C.	+ 3 24	N.N.E. ¾ E.		− 5 01	− 1 37			
	−54 56	132 15	C.	+ 0 32	N. by E. ¾ E.		− 3 13	− 2 41			
	−54 56	132 15	C.	+ 2 57	N. ¾ E.	−80 20	− 1 26	+ 1 31	− 1 29	+1 23	−0 06
	−55 06	132 07	Cr.	+ 1 47	N.N.E.		− 3 48	− 2 01			
	−55 01	132 15	Cr.	+ 2 46	N.E. ½ N.		− 6 05	− 3 19			
	−54 05	134 50	C.	+ 4 03	E. by N. ½ N.		− 8 33	− 4 30			
	−54 05	134 50	C.	+ 6 12	E.N.E.		− 8 15	− 2 03			
	−54 05	134 50	C.	+ 2 07	E. by N. ½ N.		− 8 24	− 6 17			
	−54 05	134 50	C.	+ 2 25	E. ½ N.		− 9 01	− 6 36			
	−54 05	134 50	C.	+ 2 07	E. ¾ N.		− 8 56	− 6 49			
	−54 05	134 50	C.	+ 6 00	E. ½ N.	−79 15	− 9 01	− 3 01	− 5 07	+1 23	−3 44
	−54 06	134 31	Cr.	+ 5 19	E. by N.		− 8 52	− 3 33			
	−54 06	134 31	Cr.	+ 2 53	E. by N.		− 8 52	− 5 59			
	−54 06	134 31	Cr.	+ 4 27	E. by N.		− 8 52	− 4 25			
	−54 06	134 39	Cr.	+ 1 34	E.		− 9 10	− 7 36			
	−54 06	134 48	Cr.	+ 3 38	E.		− 9 10	− 5 32			
April 1.	−53 01	134 50	C.	− 0 30	N.N.E. ¾ E.		− 4 18	− 4 48			
	−53 01	134 50	C.	− 0 46	N.E. ½ E.		− 6 33	− 7 19			
	−52 54	135 10	C.	− 0 44	N.N.E. ¾ E.		− 4 18	− 5 02			
	−52 54	135 10	C.	− 1 52	N. by E. ¼ E.		− 2 01	− 3 53			
	−52 54	135 10	C.	− 1 18	N. by E. ½ E.	−79 00	− 2 25	− 3 43	− 5 18	+1 23	−3 55
	−52 54	135 10	C.	− 2 56	N. by E. ½ E.		− 2 25	− 5 21			
	−52 54	135 10	C.	− 1 47	N.N.E.		− 3 12	− 4 59			
	−52 54	135 10	C.	− 4 08	N.N.E.		− 3 12	− 7 20			
2.	−51 16	136 49	Cr.	− 5 35	N. by E. ¾ E.		− 2 23	− 7 58			
	−51 16	136 49	C.	− 4 12	N. by E. ¼ E.	−77 30	− 1 44	− 5 56	− 7 01	+1 23	−5 38
	−51 14	136 50	C.	− 2 00	N.E.		− 5 09	− 7 09			
5.	−44 53	143 00	Cr.	− 7 44	N.E.		− 3 43	−11 27			
	−44 53	143 00	C.	− 7 22	N.E.		− 3 43	−11 05			
	−44 56	143 16	C.	− 7 12	N.E. by E.		− 4 26	−11 38			
	−44 40	143 50	C.	− 8 16	N.E.		− 3 43	−11 59			
	−44 40	143 50	C.	− 7 21	N.E. ¾ E.		− 4 00	−11 21			
	−44 56	143 16	Cr.	− 1 23	E.N.E.	−73 00	− 5 04	− 6 27	−10 02	+1 23	−8 39
	−44 50	143 20	Cr.	− 2 22	S.E.		− 4 24	− 6 46			
	−44 50	143 20	Cr.	− 6 19	S.S.E. ½ E.		− 3 00	− 9 19			
	−44 05	145 30	C.	− 7 16	N.E. ½ E.		− 4 04	−11 20			
	−44 05	145 30	C.	− 5 01	N.E. ½ E.		− 4 04	− 9 09			
	−44 05	145 30	C.	− 5 57	N.E. ¼ E.		− 3 53	− 9 50			

General Table of the Declinations observed on board Her Majesty's Ships Erebus and Terror, between November 1840 and April 1841.

Lat.	Long.	Ship.	No. of observations.	Declination.
° ′	° ′			° ′
		+ 15° to + 5°.		
−60 20	131 30	Terror.	10	+10 23
−59 03	129 33	Terror.	7	+10 07
−57 21	127 45	Erebus.	10	+ 8 47
−57 22	127 40	Terror.	8	+ 8 37
−58 54	129 38	Erebus.	11	+ 8 32
−60 20	131 21	Erebus.	8	+ 8 18
−60 25	131 38	Terror.	11	+ 8 15
−60 25	131 37	Erebus.	10	+ 8 09
−60 20	131 22	Erebus.	7	+ 7 38
−56 14	130 44	Erebus.	8	+ 5 46
−56 39	129 45	Terror.	7	+ 5 21
		+ 5° to − 5°.		
−62 13	136 12	Terror.	5	+ 1 35
−55 11	131 31	Erebus.	7	+ 1 34
−55 04	132 44	Erebus.	9	+ 1 09
−55 12	132 00	Terror.	7	+ 0 45
−55 13	131 15	Erebus.	7	+ 0 31
−55 04	132 10	Terror.	5	+ 0 16
−54 59	132 13	Terror.	6	− 0 06
−62 06	136 07	Erebus.	6	− 0 27
−52 52	135 26	Erebus.	7	− 1 03
−62 15	136 23	Erebus.	7	− 1 13
−54 04	134 45	Erebus.	7	− 1 44
−54 04	134 30	Erebus.	6	− 1 50
−63 22	139 41	Terror.	8	− 3 29
−54 05	134 44	Terror.	11	− 3 44
−52 56	135 05	Terror.	8	− 3 55
−62 37	138 24	Erebus.	6	− 4 05
−51 11	136 54	Erebus.	5	− 4 39
		− 5° to − 15°.		
−51 15	136 49	Terror.	3	− 5 38
−63 13	140 00	Erebus.	12	− 5 58
−64 20	140 40	Erebus.	6	− 6 57
−44 37	143 56	Terror.	11	− 8 39
−44 18	145 04	Erebus.	9	− 8 46
−42 52	147 24	Erebus.	6	−10 24
−44 24	152 58	Terror.	2	−11 38
−65 04	142 47	Erebus.	2	−12 37
−45 36	152 53	Erebus.	8	−13 09
−46 08	154 15	Erebus.	8	−13 38
−46 13	154 26	Terror.	4	−13 47
−46 30	154 55	Erebus.	7	−13 58
−64 17	148 52	Terror.	7	−13 59
−49 18	160 18	Terror.	4	−14 44
		− 15° to − 25°.		
−50 33	166 15	Terror.	42	−15 29
−50 54	166 35	Erebus.	7	−16 03
−52 22	169 38	Terror.	11	−17 08
−49 47	161 00	Erebus.	8	−17 16
−64 17	149 03	Erebus.	5	−17 19
−50 32	166 12	Erebus.	6	−17 44
−52 33	169 09	Erebus.	2	−17 52
−63 50	151 35	Terror.	10	−18 31
−54 14	169 06	Erebus.	5	−18 44
−63 50	151 48	Erebus.	6	−18 59
−63 52	151 51	Erebus.	6	−20 15
−59 32	170 05	Terror.	8	−20 20
−59 32	170 05	Terror.	13	−20 56
−59 32	169 59	Erebus.	8	−21 28
−57 10	170 06	Erebus.	7	−21 58
−58 19	170 39	Terror.	12	−21 58
−57 40	170 26	Erebus.	7	−21 59
−64 05	161 47	Terror.	7	−22 19
−60 47	170 55	Erebus.	11	−22 32
−64 08	163 04	Terror.	7	−22 48
−60 13	170 25	Erebus.	10	−22 49
−65 34	162 08	Terror.	6	−23 47
−60 18	170 12	Terror.	12	−23 48
−64 05	161 13	Erebus.	9	−24 06
−63 10	156 25	Erebus.	9	−24 07
		− 25° to − 35°.		
−65 06	172 20	Erebus.	8	−25 06
−64 10	163 14	Erebus.	11	−25 18
−64 18	172 31	Erebus.	9	−25 33
−64 26	173 00	Terror.	9	−25 52
−64 52	162 42	Erebus.	9	−25 54
−64 40	172 44	Erebus.	8	−25 57
−65 42	172 13	Terror.	7	−26 17
−62 50	157 01	Terror.	7	−26 49
−65 50	164 39	Terror.	9	−26 56
−64 33	163 23	Terror.	10	−26 58
−66 52	167 35	Terror.	8	−27 06
−65 57	171 45	Erebus.	7	−27 11
−66 27	169 44	Erebus.	8	−27 21
−65 27	172 29	Erebus.	11	−27 34
−65 30	172 34	Erebus.	10	−28 08
−66 20	169 51	Erebus.	9	−28 21
−65 43	165 10	Erebus.	13	−28 23
−65 31	173 05	Terror.	12	−29 17
−65 35	173 38	Terror.	12	−29 42
−67 16	174 41	Erebus.	16	−31 29
−67 56	167 31	Erebus.	8	−32 35
−68 31	176 05	Erebus.	12	−33 52
−68 00	175 05	Erebus.	13	−34 04
−68 24	175 45	Terror.	10	−34 38
−68 28	176 32	Erebus.	1	−34 39
−68 55	176 20	Erebus.	5	−34 58
		− 35° to − 45°.		
−69 23	167 45	Terror.	7	−36 06
−68 59	167 46	Erebus.	12	−36 12
−70 27	167 57	Terror.	11	−37 41
−69 33	167 31	Erebus.	11	−38 21
−70 03	167 30	Erebus.	10	−39 21

General Table of Declination. (Continued.)

Lat.	Long.	Ship.	No. of observations.	Declination.
° ′	° ′			° ′
— 35° to — 45°.				
−70 33	172 57	Erebus.	6	−39 35
−70 23	167 23	Erebus.	7	−39 45
−71 00	172 25	Erebus.	9	−43 56
−71 22	170 56	Erebus.	10	−44 01
−71 51	171 53	Erebus.	9	−44 24
— 45° to — 55°.				
−71 08	172 07	Terror.	10	−45 45
−71 52	171 19	Terror.	12	−46 40
−71 21	171 14	Terror.	8	−46 52
−71 55	172 00	Erebus.	9	−48 12
−72 33	172 51	Terror.	8	−48 49
−72 36	173 40	Erebus.	5	−50 31
−72 16	174 09	Erebus.	6	−51 41
−72 36	173 46	Erebus.	8	−51 54
−72 40	175 17	Terror.	11	−52 35
−73 01	175 55	Erebus.	12	−52 41
−72 34	172 43	Terror.	8	−54 34
— 55° to — 65°.				
−73 57	171 23	Erebus.	12	−63 38
−73 53	171 37	Terror.	8	−64 12
−74 01	171 42	Erebus.	10	−64 25
— 65° to — 75°.				
−74 01	172 35	Terror.	5	−65 04
−73 47	171 23	Terror.	10	−65 41
−74 26	168 37	Terror.	6	−68 40
−74 39	169 00	Erebus.	7	−69 47
−74 51	168 10	Terror.	4	−70 52
−74 46	168 42	Erebus.	10	−71 08
−74 46	167 53	Erebus.	2	−74 48
— 75° to — 85°.				
−76 40	188 40	Erebus.	5	−77 53
−76 57	186 38	Erebus.	9	−81 33
−77 18	192 38	Erebus.	13	−81 50
−77 08	189 02	Erebus	6	−82 09
−77 11	192 58	Erebus.	6	−82 26
−77 22	188 43	Erebus.	12	−82 29
−77 07	192 22	Terror.	13	−83 03
−76 57	188 30	Terror.	9	−83 24
−77 17	191 35	Erebus.	6	−83 56
−75 39	168 33	Erebus.	9	−84 58
— 85° to — 95°.				
−77 04	188 28	Terror.	5	— 85 09
−76 23	177 25	Erebus.	2	— 85 10
−77 12	187 02	Erebus.	10	— 87 29
−76 25	177 35	Terror.	2	— 88 55
−77 22	186 21	Erebus.	6	— 89 19
−75 36	167 45	Terror.	2	— 89 32
−77 03	186 40	Terror.	10	— 89 37
−77 28	186 33	Erebus.	6	— 90 21
−75 28	168 12	Terror.	9	— 90 44
−77 09	188 22	Erebus.	9	— 91 07
−77 35	186 40	Erebus.	9	— 93 22
−77 36	186 41	Terror.	9	— 93 24
−77 44	188 00	Erebus.	8	— 93 41
−77 54	188 27	Erebus.	8	— 93 41
−77 51	191 01	Erebus.	5	— 93 43
−77 46	186 53	Erebus.	8	— 94 14
−75 52	167 00	Erebus.	8	— 94 27
−77 51	189 42	Terror.	7	— 94 42
−77 45	189 00	Terror.	6	— 94 59
— 95° to — 105°.				
−77 43	187 04	Terror.	8	— 95 21
−77 49	187 26	Erebus.	6	— 95 52
−77 51	187 38	Erebus.	6	— 96 00
−77 51	186 38	Erebus.	10	— 96 14
−77 47	180 34	Erebus.	1	— 96 17
−77 44	186 06	Terror.	5	— 97 11
−76 07	168 45	Erebus.	4	— 98 45
−75 58	168 50	Terror.	2	— 99 41
−76 10	166 02	Erebus.	4	— 99 41
−76 04	166 19	Terror.	5	—100 14
−77 47	176 19	Terror.	5	—102 09
−77 41	175 57	Erebus.	7	—104 25
— 105° to — 115°.				
−77 50	178 00	Erebus.	4	—105 21
−76 22	165 44	Erebus.	6	—106 13
−76 47	169 26	Terror.	2	—107 05
−76 32	166 30	Terror.	9	—111 44
−76 36	166 18	Erebus.	13	—113 23
−76 33	164 45	Erebus.	8	—113 41
−77 22	172 04	Terror.	4	—114 21

Total number of observations 1368. No observation has been omitted or its result rejected. The scale of the declination chart has not permitted the insertion of all the results comprised in this table, and a few of those of the Terror have consequently been omitted in the very high latitudes where the figures are most crowded. The next number of these contributions, embracing the observations of the succeeding voyage, will contain a declination chart of the high latitudes on a more extended scale, in which all the results of both voyages will be inserted.

General Table of the Inclinations observed in Her Majesty's Ship Erebus, from June 1840 to April 1841.

Lat.	Long.	No. of observations.	Inclination.	Lat.	Long.	No. of observations.	Inclination.
−48° 41′	68° 54′	9	−70° 00′ *a*	−68° 17′	175° 00′	5	−83° 12′
−48 29	76 55	2	−70 55	−68 32	175 49	6	−83 28
−48 17	80 15	2	−71 50	−68 28	176 31	5	−83 17
−47 55	83 00	2	−72 34	−68 28	176 32	5	−83 35 *e*
−47 46	86 18	2	−73 33	−68 53	176 23	5	−83 40
−47 12	89 45	2	−73 35	−70 23	174 50	4	−85 00
−47 03	93 00	2	−74 37	−71 15	171 15	4	−85 50
−47 39	102 42	2	−74 28	−71 24	170 44	4	−85 53
−47 35	106 26	2	−74 31	−71 47	170 52	3	−86 10
−47 45	110 39	2	−75 08	−72 07	172 19	4	−86 13
−47 34	114 15	2	−75 26	−71 52	172 08	2	−85 53
−47 41	121 30	2	−76 04	−71 55	171 51	4	−85 55
−47 34	124 43	2	−76 40	−72 12	172 13	4	−86 41
−46 44	128 26	2	−75 41	−72 09	173 35	3	−86 03
−46 13	132 00	2	−75 17	−72 57	176 06	5	−86 11
−45 59	135 38	2	−73 48	−72 35	173 34	4	−86 36
−45 17	139 19	2	−73 23	−72 31	173 39	4	−86 51
−44 24	141 39	2	−72 37	−73 48	171 47	7	−87 04
−44 16	142 38	2	−73 03	−74 06	170 40	8	−87 12
−42 52	147 24		−70 38 *b*	−73 56	171 35	8	−87 11
−44 16	149 29	3	−70 41	−74 33	173 23	7	−87 29
−45 13	151 57	3	−71 49	−74 43	169 48	5	−87 25
−45 33	152 45	3	−71 37	−74 45	168 23	4	−88 18
−46 18	154 30	3	−72 04	−74 55	169 01	3	−88 21
−47 46	157 40	3	−73 14	−75 22	168 48	4	−88 36
−49 20	160 13	3	−74 15	−76 06	168 11	4	−88 27
−50 28	164 09	3	−74 23	−77 07	169 56	2	−88 01
−50 33	166 19		−73 10 *c*	−77 47	175 43	4	−86 48
−52 34	169 10	7	−73 52 *d*	−77 41	180 54	2	−85 54
−54 06	169 09	4	−74 46	−77 06	189 08	5	−85 56
−55 50	170 06	3	−76 16	−77 05	188 36	5	−86 12
−57 15	170 40	3	−77 43	−77 09	188 15	4	−86 23
−57 54	170 25	3	−77 51	−77 49	186 30	5	−86 10
−58 57	170 57	4	−78 04	−77 17	185 26	4	−86 49
−59 43	169 39	6	−78 34	−77 00	192 18	5	−85 36
−60 19	170 20	7	−78 53	−77 07	192 26	4	−85 26
−60 46	170 44	4	−79 06	−77 24	192 56	4	−85 45
−61 34	170 40	3	−79 30	−77 10	192 48	5	−86 06
−62 06	172 51	4	−79 41	−77 09	188 43	6	−85 54
−62 40	173 40	1	−79 58	−76 59	186 39	5	−86 23
−62 44	174 36	5	−80 09	−77 43	187 10	5	−85 51
−64 00	172 44	4	−81 03	−77 55	189 04	2	−85 49
−64 06	172 38	5	−81 03	−77 38	187 00	5	−86 19
−64 31	172 57	6	−81 11	−76 22	188 05	4	−86 07
−65 58	172 47	4	−82 20	−76 50	183 26	3	−86 23
−66 17	170 57	4	−82 25	−76 17	175 37	6	−87 15
−66 30	169 13	4	−82 40	−76 14	172 35	1	−87 36
−66 32	169 45	4	−82 31	−76 06	168 07	7	−88 21
−66 23	170 12	4	−82 53	−76 20	165 32	4	−88 35
−65 39	170 44	4	−81 51	−76 36	164 38	5	−88 19
−65 22	172 40	4	−81 43	−75 21	168 06	6	−87 52
−66 55	174 31	3	−82 13	−72 13	171 04	4	−86 23
−67 27	174 51	4	−82 58	−70 55	168 43	3	−85 53

a On shore at Kerguelen Island. *b* On shore at Van Diemen Island. *c* On shore at Auckland Island. *d*. On shore at Campbell Island. *e* On Ice.

General Table of Inclination. (Continued.)

Lat.	Long.	No. of observations.	Inclination.	Lat.	Long.	No. of observations.	Inclination.
−70° 41′	167° 20′	4	−85° 51′	−65° 14′	144° 37′	3	−85° 05′
−70 17	167 24	6	−86 19	−65 11	143 52	3	−85 10
−70 14	167 16	3	−86 06	−65 09	143 07	6	−85 16
−69 57	167 52	2	−85 41	−64 20	140 40	5	−84 36
−69 24	167 55	5	−85 28	−63 09	139 28	7	−84 46
−69 46	167 43	5	−85 54	−62 18	136 40	6	−84 20
−69 06	167 43	5	−85 26	−61 18	134 02	5	−83 55
−68 28	168 10	5	−85 07	−60 20	131 21	5	−83 31
−67 47	167 22	5	−84 28	−59 25	130 14	5	−82 52
−65 49	166 12	7	−83 35	−58 06	128 43	1	−82 09
−65 53	162 14	3	−83 51	−57 22	127 37	2	−81 43
−64 41	162 34	4	−82 55	−56 28	129 57	1	−80 43
−64 20	163 29	4	−82 54	−55 02	131 48	5	−80 15
−63 52	160 55	5	−83 32	−54 55	132 50	6	−80 07
−62 41	156 59	5	−82 33	−54 02	134 59	8	−79 39
−63 50	156 06	4	−83 54	−53 13	135 18	5	−79 09
−64 12	154 47	3	−84 06	−51 16	136 50	4	−77 59
−64 13	154 03	3	−84 06	−48 48	138 34	4	−76 54
−64 20	153 02	5	−84 14	−46 55	139 55	3	−75 42
−63 54	151 56	3	−84 06	−46 25	140 55	7	−75 12
−64 18	149 09	3	−84 48	−44 57	144 18	8	−73 54
−64 33	148 03	4	−85 03	−43 50	146 00	5	−72 15

General Table of the Intensity of the Magnetic Force from the observations made on board Her Majesty's Ship Erebus, between July 1840 and April 1841.

Latitude.	Longitude.	Intensity. London = 1·372.	Latitude.	Longitude.	Intensity. London = 1·372.	Latitude.	Longitude.	Intensity. London = 1·372.
−48° 41′	68° 54′	1·465	−60° 31′	170° 32′	1·951	−77° 00′	192° 18′	2·039
−48 29	76 55	1·539	−61 17	171 14	1·960	−77 10	192 48	2·036
−48 17	80 15	1·574	−62 40	174 40	1·983	−77 14	192 02	2·020
−47 55	83 51	1·601	−64 00	172 44	1·976	−77 09	188 50	2·036
−47 46	86 18	1·575	−64 06	172 38	1·973	−76 58	188 40	2·035
−47 12	89 45	1·565	−64 31	172 55	1·988	−77 43	187 11	2·035
−47 03	93 00	1·712	−65 46	171 40	1·996	−76 55	188 49	2·048
−47 26	99 54	1·783	−66 31	169 20	2·008	−76 50	183 26	2·035
−47 35	106 26	1·863	−66 23	170 12	2·018	−76 16	175 50	2·017
−47 40	112 27	1·898	−65 39	170 44	2·046	−76 03	169 30	2·033
−47 41	121 30	1·992	−65 22	170 40	2·025	−76 20	165 32	2·041
−47 34	124 43	1·996	−66 55	174 31	2·009	−75 03	168 44	2·040
−46 28	130 13	2·007	−68 30	175 40	2·011	−71 17	170 43	2·037
−45 59	135 38	1·989	−68 28	176 31	2·032	−71 04	170 07	2·026
−45 17	139 19	2·005	−68 28	176 32	2·025	−70 25	167 27	2·036
−44 24	141 39	1·976	−68 48	176 45	2·016	−69 24	167 49	2·025
−44 16	142 38	1·934	−70 23	174 50	2·033	−68 28	168 10	2·047
−45 02	143 10	1·923	−71 15	171 15	2·030	−67 52	167 28	2·043
−46 22	141 06	1·954	−71 24	170 44	2·029	−65 31	167 42	2·041
−46 29	140 40	1·949	−71 47	170 52	2·056	−64 58	162 27	2·024
−43 41	146 03	1·892	−72 07	172 19	2·038	−64 13	163 18	2·018
−42 52	147 24	1·820	−71 55	171 51	2·028	−63 57	161 11	2·010
−44 10	149 29	1·844	−72 12	172 13	2·032	−62 41	156 59	2·022
−45 13	151 57	1·833	−72 09	173 35	2·026	−63 50	156 06	2·013
−45 33	152 45	1·843	−72 57	176 06	2·038	−64 13	154 03	2·011
−46 18	154 30	1·820	−72 35	173 34	2·035	−64 20	153 02	2·032
−47 46	157 40	1·817	−72 31	173 39	2·039	−63 54	151 56	2·023
−49 20	160 13	1·846	−73 47	171 50	2·052	−64 26	148 20	2·065
−50 28	164 09	1·858	−74 10	170 28	2·044	−64 45	142 00	2·068
−50 33	166 19	1·851	−74 06	171 20	2·052	−63 09	139 28	2·043
−52 42	169 10	1·877	−73 56	172 20	2·035	−61 46	135 12	2·051
−53 47	169 02	1·844	−74 36	173 01	2·037	−60 19	131 20	2·071
−54 25	169 16	1·874	−74 44	169 43	2·045	−58 00	128 40	2·056
−55 50	170 06	1·903	−75 22	168 48	2·048	−54 44	132 21	2·027
−57 15	170 40	1·914	−76 06	168 11	2·031	−53 13	135 18	2·047
−57 54	170 25	1·911	−76 46	169 22	2·040	−51 16	136 50	2·041
−58 57	170 57	1·920	−77 47	175 43	2·017			
−59 41	169 38	1·932	−77 04	188 24	2·017			
−60 14	170 15	1·951	−77 17	185 26	2·023			